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ABSTRACT

The primary objectives of the New Nursery School were to increase children's sensory and perceptual acuity, develop positive self concept, and increase language, conceptual and problem solving abilities. During 1969-1970 the longitudinal study, begun in 1964, included 28 children who were 3- and 4-year-olds from lower socioeconomic homes characterized by use of dialect or primary speech of another language and lack of English fluency. To determine the effectiveness of an open, responsive environment in lessening the educational gap between advantaged and disadvantaged children, several projects were undertaken to extend and evaluate the work done in previous years. Through the use of a mobile instructional library, a home visitation program was continued which brought the New Nursery School teaching strategies and related educational materials directly into the homes of the pupils. A small scale project to study the feasibility of a Spanish tutorial program for prekindergarten children was begun. A method of evaluating young children's comprehension of key grammatical elements was used, evaluated and revised. Results are discussed in terms of a comparative analysis of several testing measures. More than half of this document consists of tables and supplemental information. (Author/AJ)

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THE NEW NURSERY SCHOOL RESEARCH PROJECT

Evaluating the Effectiveness of an Open, Responsive Environment in Achieving Selected Objectives of Early Childhood Education.

FINAL REPORT

Research Grant Number: B00-5086
Research and Evaluation Project Head Start

November 1, 1969 to October 31, 1970

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PS004525

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Special recognition is also given to the parents who allowed their children to participate in this project so that information might be obtained which would be of help to other children.

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SECTION ONE

INTRODUCTION

Only through coordinated efforts of society, schools, homes and individuals can the cycle of poverty in which many families are caught be broken.

The New Nursery School, College of Education, University of Northern Colorado, is attempting to help in this effort by developing, demonstrating, and evaluating curricula and procedures suitable for Head Start centers, and evaluating their effectiveness over a period of time.

An effort is made to increase a child's confidence in himself -- that good feeling of *I'm all right, I'm important,* and *I can* -- plus the competence to sustain that feeling. Intellectual development is emphasized in a learning environment which is also responsive to the young child's physical, emotional, and social needs. A wide variety of instructional materials, such as art, books, records, songs, telephones, tape recorders, electric typewriters, blocks, self-correcting manipulative toys, games, food, outdoor activities, and field trips are used to help the child learn.

Efforts are made to help each child become a more effective and efficient learner through developing the way he learns. He is shown how and given opportunity to use all his senses as means of finding out about his surroundings; to interpret accurately what these senses encounter, so that his perception of the world about him will be clearer. He is encouraged and prepared to confront and solve problems independently, efficiently, and with satisfaction.

The New Nursery School also wants the child to develop and be able to use certain fundamental concepts and skills which seem to expedite learning; consequently, each child is taught:

**To label and describe.
**To make associations between objects and actions and their representations or symbolic expressions.
**To comprehend and express accurately ideas of color, size, shape, number, relative and contrasting location and conditions.
**To classify, order, contrast, and compare.

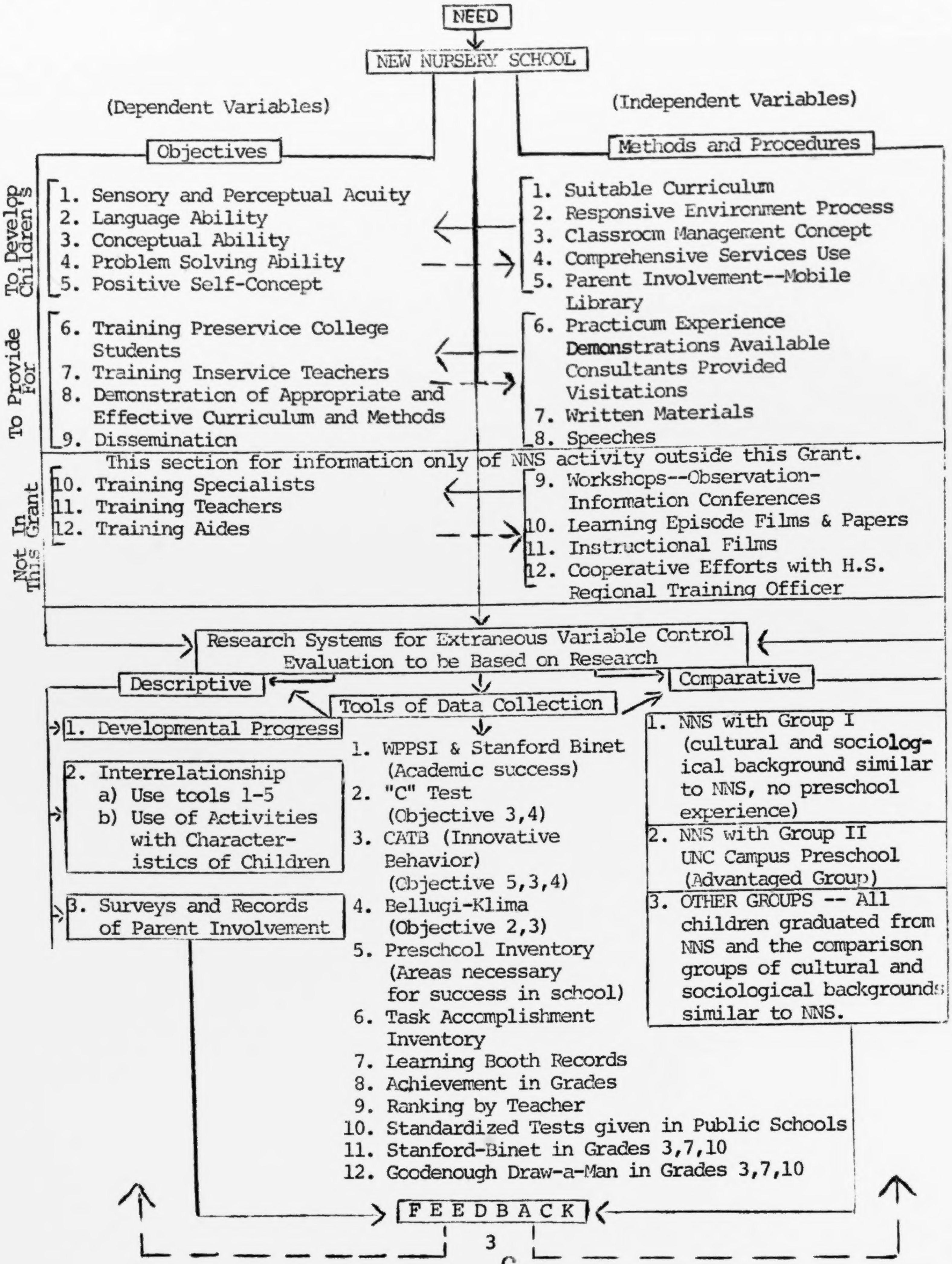
Although the program is a dynamic, changing one, certain conditions which seem to encourage learning guide its development. Among these conditions one finds an emphasis on:

- **Exploration, experimentation, and discovery.
- **Each child being actively and physically involved in the learning process.
- **Allowing each child to choose his own activities from those that are available, to set his own pace, and to develop his own style in working on them. The classroom activities are flexible and varied to meet the needs and interests of individual children or groups of children.
- **Intrinsic motivation. The child participates in learning activities because he is interested and wants to learn and not because of external rewards or punishments.
- **Learning, rather than on teaching in the traditional sense.

The program year 1969-70 continued longitudinal research, begun in 1964, on the effectiveness of an open, responsive environment in lessening the educational gap between advantaged and disadvantaged children. In addition, several projects were undertaken to extend and evaluate the work done in previous years. Through the use of a mobile instructional library, a home visitation program was continued which allowed the New Nursery School teaching strategies and related educational materials to function directly in the homes of the pupils. A small scale project to study the feasibility of a Spanish tutorial program for prekindergarten children was begun. A method of evaluating young children's comprehension of key grammatical elements, developed by Dr. Ursula Bellugi-Klima, was used, evaluated and revised.

The schematic chart on the next page presents visually the systems approach used in the New Nursery School Project and is a synthesis-analysis summary of the processes and products involved. The dependent and independent variables indicated in the schematic chart are amplified or further described on pages 4 and 5.

SYSTEMS APPROACH TO PRESENTATION OF NEW NURSERY SCHOOL PROJECT



NEED

NEW NURSERY SCHOOL

(Dependent Variables)

Objectives

To Develop Children's

1. Sensory and Perceptual Acuity
2. Language Ability
3. Conceptual Ability
4. Problem Solving Ability
5. Positive Self-Concept

To Provide For

6. Training Preservice College Students
7. Training Inservice Teachers
8. Demonstration of Appropriate and Effective Curriculum and Methods
9. Dissemination

(Independent Variables)

Methods and Procedures

1. Suitable Curriculum
2. Responsive Environment Process
3. Classroom Management Concept
4. Comprehensive Services Use
5. Parent Involvement--Mobile Library
6. Practicum Experience
   Demonstrations Available
   Consultants Provided
   Visitations
7. Written Materials
8. Speeches

This section for information only of NNS activity outside this Grant.

Not In This Grant

10. Training Specialists
11. Training Teachers
12. Training Aides

9. Workshops--Observation-Information Conferences
10. Learning Episode Films & Papers
11. Instructional Films
12. Cooperative Efforts with H.S. Regional Training Officer

Research Systems for Extraneous Variable Control
Evaluation to be Based on Research

Descriptive

1. Developmental Progress
2. Interrelationship
   a) Use tools 1-5
   b) Use of Activities with Characteristics of Children
3. Surveys and Records of Parent Involvement

Tools of Data Collection

1. WPPSI & Stanford Binet (Academic success)
2. "C" Test (Objective 3,4)
3. CATB (Innovative Behavior) (Objective 5,3,4)
4. Bellugi-Klima (Objective 2,3)
5. Preschool Inventory (Areas necessary for success in school)
6. Task Accomplishment Inventory
7. Learning Booth Records
8. Achievement in Grades
9. Ranking by Teacher
10. Standardized Tests given in Public Schools
11. Stanford-Binet in Grades 3,7,10
12. Goodenough Draw-a-Man in Grades 3,7,10

Comparative

1. NNS with Group I (cultural and sociological background similar to NNS, no preschool experience)
2. NNS with Group II UNC Campus Preschool (Advantaged Group)
3. OTHER GROUPS -- All children graduated from NNS and the comparison groups of cultural and sociological backgrounds similar to NNS.

FEEDBACK

DEPENDENT VARIABLES (Objectives)

The capabilities desired of the children after completing the school experiences are defined under five primary objectives. (Examples only are listed under each objective.)

1. Increasing sensory and perceptual acuity.
   a. The child is able to use all his senses as a means of finding out about his environment.
   b. The child begins to interpret accurately what his senses encounter.

2. Developing language ability.
   a. The child is able to label and describe objects, actions, events, and relationships in his environment.
   b. The child is able to use words to remember and predict events, to contrast and compare.
   c. The child is able to communicate in words and sentences which can be understood by others.
   d. The child is able to comprehend and express certain fundamental concepts which seem to expedite further learning (see below).

3. Developing conceptual ability.
   a. The child is able to comprehend and express concepts of:
      - color
      - shape (including letters and numerals)
      - size (including relative size)
      - number
      - relative and contrasting locations (in front of, behind, in, out)
      - contrasting or opposing conditions (hot/cold, with/without, same/different, and/or)
      - relative number (more/fewer)
      - relative mass or volume (more/less)
      - relative weight

4. Developing problem solving ability.
   a. The child is able to work on his own to attempt to solve problems.
   b. The child is able to use certain processes of learning which enable him to solve problems, such as sorting and classifying, ordering, patterning, counting, making associations, eliminating known responses to arrive at an unknown, identifying which piece is missing out of a matrix or puzzle, and so forth.

5. Developing a positive self-concept.
    a. The child begins to develop an understanding of and pride in his cultural and ethnic heritage.
    b. The child is able to participate in classroom activities at his own pace and with his own style of operation, and to enjoy such participation.
    c. The child is able to respond to and say his first, last, and full name on request.
    d. The child is able to develop a positive relationship with adults, as evidenced by seeking information and help, lack of fear, and other indicators of trust.

The secondary objectives are:

1. Training preservice college students - each year at least six graduate and undergraduate college students receive practical experience working with young disadvantaged children.

2. Training inservice teachers - the New Nursery School staff is available for consultation and demonstration.

3. Demonstration of appropriate and effective curricula and methods - observation and demonstration up to three days is available with no charge at all to interested people.

4. Dissemination of information is effected through films, written materials, speeches, and workshops.

INDEPENDENT VARIABLES (Methods)

The variables listed as primary and secondary objectives are dependent upon the methods and procedures listed as independent variables. Briefly described, these independent variables are:

1. The child is encouraged to experiment, explore and make discoveries on his own.

2. The child is actively, physically involved in the learning process.

3. The child is encouraged to choose the activities in which he wants to participate, and to set his own pace and style in working at them.

4. The child participates in learning activities because he is interested and wants to learn, not because of external rewards or punishments.

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All teachers and assistants in the classroom are trained in using these methods to implement and guide the classroom experiences which comprise the curriculum.

Additional information concerning the practices, equipment, and materials used in the New Nursery School may be secured from the following recent publications.

Oralie McAfee, "An Oral Language Program for Early Childhood," Promising Practices in the Teaching of English, (The National Council of Teachers of English), November, 1968.

________, "The Right Words," Young Children, XXIII, No. 2, (National Association for the Education of Young Children, November, 1967).

________, "Planning the Preschool Program," Curriculum is What Happens: Planning is the Key, (National Association for the Education of Young Children, 1970).

________, Round, The New Nursery School, University of Northern Colorado, Greeley, Colorado, 1969. Occasional paper available from ERIC Clearinghouse.

________, Using "Sesame Street" in the Early Childhood Classroom. (Head Start Newsletter, Office of Child Development, Vol. 4, Nos. 9 & 10, January, 1970).

John H. Meier, Glen Nimnicht, and Oralie McAfee, "An Autotelic Responsive Environment Nursery School for Deprived Children," Disadvantaged Child, Vol. 2, (Bruner/Mazel, Inc., New York, 1968), 229.

New Nursery School: Research Project: Annual Progress Report. October 1, 1968 to September 30, 1969. Office of Economic Opportunity, University of Northern Colorado, Greeley, Colorado. (Available from ERIC - ED 036 320).

Glen Nimnicht, Oralie McAfee, and John Meier, The New Nursery School, (General Learning Corporation, 1969).

Samples of curriculum materials and procedures are also available from the New Nursery School, University of Northern Colorado, 1203 Fourth Street, Greeley, Colorado 80631.

SECTION TWO

DESCRIPTION OF POPULATION

THE NEW NURSERY SCHOOL (Experimental Group)

During the period under study (1969-70), thirty children were enrolled in the New Nursery School, fifteen in each of two, three hour and fifteen minute sessions.

Each pupil enrolled met at least three of the following qualifying conditions:

1. Economic conditions in the home are at or below Head Start economic guidelines.
2. Educational level of the parents is at or below ninth grade.
3. The family is receiving assistance from welfare and other agencies.
4. Older siblings have had or are having school difficulty.
5. Deviant behavior is evident within the family.
6. One or both parents are absent from the home.
7. Speech is different from that expected in school, as evidenced by lack of fluency, use of dialect, or primary language other than English used by parent or parent-substitute.

In addition, an attempt was made to maintain the following age and sex balance:

- Fifteen boys and fifteen girls.
- Fifteen four-year-olds (four before September 10th of their last year in nursery school).
- Fifteen three-year-olds (three before September 10th of their first year in nursery school). September 10th is the cut-off date for entering public school kindergarten in Greeley.

The children were selected from referrals by welfare agencies, the public schools, word of mouth referral by persons living in the community, applications made by parents and other relatives, and applications taken in door to door solicitation.

The following demographic information is given for twenty-eight children from twenty-four families. Two children moved away late in the year and were not replaced.

Eight of the children came from the Spanish Colony two miles northwest of Greeley. The others came primarily from the northeast side of the city. Few are close enough to walk; a small school bus is provided by the University for transportation.

Almost all of the children live in single family dwellings, however small.

Close family ties are still maintained in the Spanish community in Greeley, and there are complex interrelationships. As a result, many of the children attending the New Nursery School are cousins. While this situation sometimes presents certain problems in the classroom, the chances of effecting changes in attitude toward education among the whole family are greater.

Although there is considerable mobility of the families within the northeast area of Greeley, there is little movement out of the area. In the Spanish Colony, the resident population is quite stable. From both areas, younger brothers and sisters of children who attended school in 1964, the first year the New Nursery School operated, are presently attending. Resident families are given preference in enrollment so that the longitudinal study necessary for evaluating effectiveness can be carried out. The isolation and family disintegration often reported as characteristic of low-income urban environments are evident in only a few of the families.

COMPARISON GROUP I (Similar Sample)

This group consisted of children with no preschool experience but cultural and sociological background similar to those enrolled in the New Nursery School. These children were selected in the first few weeks of kindergarten in fall, 1970. Since almost all such children in Greeley attend the Head Start program, it was necessary to go to small towns in rural areas near Greeley. The principals and kindergarten teachers in Johnstown, Milliken, Gilcrest, and Platteville cooperated in selecting children. From their 1970-71 kindergarten classes fifteen children were selected who met at least three of the criteria for the selection of New Nursery School children. Even with the help of the principals and teachers it was impossible to obtain for many children information concerning the education of their parents, the jobs held by parents, and the like. In every instance parental permission was received for the children to participate in the study.

TABLE 1

DEMOGRAPHIC INFORMATION
NEW NURSERY SCHOOL
(1969-1970)

INDIVIDUAL

AGE:	(as of September 10, 1969)	
	3 years	14
	4 years	14
SEX:	Female	13
	Male	15
*ETHNIC ORIGIN:	Anglo	0 - (three were enrolled but moved during the year)
	Spanish	24
	Anglo-Spanish	2
	Negro	2

*As in any attempts to categorize people, difficulties are encountered. The terms used here are those ordinarily used in the Greeley area.

HOME MILIEU

		Number of Children
PARENTS IN THE HOME:		
	Father/Mother	23
	Mother only	3
	Father only	0
	Foster parent(s)	0
	Grandparent(s)	2
LANGUAGE SPOKEN IN THE HOME:		
	English	5
	English/Spanish	23
	Spanish	0

MEAN NUMBER OF CHILDREN IN THE HOME: 4.43

MEAN EDUCATIONAL LEVEL OF PARENTS: (Some parents received schooling in Mexico)		Grade Level Attained in School
	Father	5.80
	Mother	6.71
	Total Mean	6.28

PARENTAL OCCUPATION

FATHER:

Construction	7
Brick Layer	2
Meat Worker	8
Farm Laborer	1
Laborer	1
Roofer	1
Trucker	1
Other	2

MOTHER:

Hospital Worker	2
Bayly's Manuf.	1

Some engage in seasonal work or part-time employment.

WELFARE STATUS: Four families receive direct welfare assistance.

Each year, according to the research plan followed, the experimental group of the New Nursery School is compared to a group similar to the one described as Comparison Group I. Demographic information for this group is in Table 2.

COMPARISON GROUP II (Home Economics Preschool)

This group consists of **children** enrolled in the University of Northern Colorado Campus Preschool, conducted by the Home Economics Department. Because it is necessary that almost all children pay tuition, these children are in the group usually classified as advantaged. It can be predicted they will achieve a high degree of success in school. Such a group is utilized in this study to help identify differences in specific and general learnings, and to determine if the curricula utilized at the New Nursery School can lessen those differences. Consent for testing was obtained from all parents.

As in the New Nursery School group, there are both first and second year pupils. In the analysis, these are referred to as Home Economics Preschool First Year and Home Economics Preschool Second Year. Comparisons were made with this group only while its members were enrolled in the Preschool. Demographic information is in Table 3.

OTHER GROUPS (New Nursery School and their respective comparison groups)

This group consists of all children who attended the New Nursery School for one year or more, and a group of children the same age and background who had little or no preschool experience. Essentially this group is each year's Experimental Group and Comparison Group I. All available information from the schools was collected and comparisons made between the respective successive New Nursery School groups and Comparison Groups I.

Prior to 1968, the children who composed this group tended to be from Greeley, to have been enrolled in the summer Head Start Program, and to have been taught by Head Start teachers who had received training in the methods and materials of the New Nursery School. Sometimes in an attempt to avoid children who had attended Head Start, children who were not really similar in background were selected. In consideration of the possible effect of these variables, Comparison Group I was chosen outside Greeley beginning in 1968.

TABLE 2

DEMOGRAPHIC INFORMATION
COMPARISON GROUP I

(Cultural and Sociological Background similar to that of the New Nursery School population, selected at kindergarten entrance in fall, 1970.)

INDIVIDUAL

AGE:	(as of September 1, 1970)	
	5 years	15
SEX:	Female	8
	Male	7
ETHNIC ORIGIN:	Anglo	2
	Spanish	13
	Anglo-Spanish	0
	Negro	0

HOME MILIEU

		Number of Children
PARENTS IN THE HOME:		
	Father/Mother	14
	Mother only	1
	Father only	0
	Foster Parent(s)	0
	Grandparent(s)	0
LANGUAGE SPOKEN IN THE HOME:		
	English	7
	English/Spanish	0
	Spanish	8

MEAN NUMBER OF CHILDREN IN THE HOME: 4.0666

MEAN EDUCATIONAL LEVEL OF PARENTS:	Grade Level Attained in School
Mother	(This information was not available. School sources said grade school education was typical)
Father	
Total Mean	

PARENTAL OCCUPATION

FATHER:

Laborer	7	Railroad Worker	1	Farmer	1
Mechanic	1	Coal Miner	1	Disabled	1

WELFARE STATUS: Four families are receiving welfare according to information available.

TABLE 3

DEMOGRAPHIC INFORMATION
COMPARISON GROUP II
(Advantaged)

INDIVIDUAL

AGE:	(as of September 10, 1969)	
	3 years	4
	4 years	10
SEX:	Female	7
	Male	7
ETHNIC ORIGIN:	Anglo	14
	Spanish	0
	Anglo-Spanish	0
	Negro	0

HOME MILIEU

		Number of Children
PARENTS IN THE HOME:		
	Father/Mother	13
	Mother only	0
	Father only	1
	Foster Parent(s)	0
	Grandparent(s)	0
LANGUAGE SPOKEN IN THE HOME:		
	English	14
	English/Spanish	0
	Spanish	0

MEAN NUMBER OF CHILDREN IN THE HOME: 1.86

MEAN EDUCATIONAL LEVEL OF PARENTS:		Grade Level Attained in School
	Mother	16.77
	Father	15.18
	Total Mean	16.04

PARENTAL OCCUPATION

FATHER:				MOTHER:	
Professor	3	Truck Driver	1	Teacher	1
Teacher	2	Student	2	Nurse	1
Realtor	1	Doctor	2		
Contractor	2	Minister	1		

NOTE: Information on the remaining mothers is not available.

A comparison of the demographic variables for the three groups shows differences in educational level of parents, number of children in the home, and languages spoken in the home. Comparison Group I is more like the Experimental Group with respect to these variables than it has been in previous years.

TABLE 4

COMPARISON OF SELECTED DEMOGRAPHIC VARIABLES OF EXPERIMENTAL AND COMPARISON GROUPS

	NEW NURSERY SCHOOL	COMPARISON* GROUP I	COMPARISON** GROUP II
Educational level of parents (Grade Level Attained in School)	6.28	***	16.04
Number of children in the home	4.43	4.006	1.86
Number of children from families speaking Spanish or both Spanish and English	23 of 28 82%	8 of 15 53%	0 of 14 0%

* Comparison Group I (Similar Sample) - Children with a background similar to that of the New Nursery School children but without nursery school experience.

** Comparison Group II (Home Economics Preschool) - Advantaged children from middle class background.

*** This information was not available for these parents but individual teachers gave information to the effect that an elementary school education was typical.

SECTION THREE

EVALUATION OF SPECIAL PROJECTS

MOBILE LIBRARY/HOME VISITATION PROGRAM
SPANISH TUTORIAL PROGRAM

THE MOBILE INSTRUCTIONAL LIBRARY/HOME VISITATION PROGRAM

The Mobile Instructional Library/Home Visitation Program is fully described in previous reports, particularly in the Annual Progress Report, November 1, 1969, to October 31, 1970. Briefly, the program involved a home visitor going to each home approximately once a week to work with children and parents with books, manipulative equipment, and other instructional materials. Parents were shown how to use the materials, which were left in the home until the next visit.

It is impossible to determine the effect of such an effort on children's performances in the nursery school by separating the effect of one portion of the program from another. Long range effectiveness of the program can only be measured by increased success of the children and involvement of the family in the educational experiences of their children. Such evaluation must be made over a long period of time.

The more immediate goal of increasing the number and quality of instructional materials in the home was achieved. Only two families refused to participate. One was a foster parent who said she did not have the time. The other family started, but did not continue when the home visitor unknowingly became involved in a family disagreement. Another mother was so seldom home that she picked up her child's instructional materials at school. It was obvious, however, that she played with him.

During the four quarters (October 1, 1969, to September 30, 1970) the home visitors successfully completed 671 of 1033 scheduled visits. This information is provided in Table 5. Tables 6 and 7 indicate the actual numbers of books and instructional materials (toys) left with the children as a result of the home visits.

TABLE 5

HOME VISITS

	October 1, 1969 to September 30, 1970 (12 months)
Visits	671
Not Home	173
Cancelled	189
TOTAL	1,033

TABLE 6

BOOKS LEFT BY VISITORS

	October 1, 1969 to September 30, 1970 (12 months)
TOTAL BOOKS	814

TABLE 7

OTHER INSTRUCTIONAL MATERIALS LEFT BY VISITORS

	October 1, 1969 to September 30, 1970 (12 months)
TOTAL ITEMS OTHER THAN BOOKS	1,410

Home visitors left 814 books with the New Nursery School children during the past year and placed 1,410 instructional material items with the children during these same visits. This breaks down to 1.3 books and 2.1 instructional material items per child per visit each week during the program year.

In October, 1970, after the home visitation program was terminated, a survey was conducted by a staff member, well known to the parents, but who had not been connected with the visitation program.

Twenty-two (22) families involving twenty-six (26) children were contacted.

In answer to the question "Do you think [the home visitor program] was good for you and your children?" Twenty out of twenty-two parents responded "Yes." Two answered "No."

Representative answers to the open question "What did you especially like (not like) about it?" are given below. They fall generally into four categories, those relating to the home visitor/child relationship, those relating to the effect of the visitations and materials on other members of the family, those relating to benefits to the child, and negative comments.

Home Visitor/Child Relationship

- **A_____ does not want to work with mother -- says she will wait for Mrs. (home visitor).
- **Very good! B_____ wants teacher to come play with her.
- **The boys miss Mrs. (home visitor) -- want her back.
- **Liked everything about it. "There wasn't nothing I did not like." The children miss Mrs. (home visitor)-- keep asking what day she is coming to play with them.
- **Liked the fact that S_____ would work with Mrs. (home visitor). She will not work with Mrs. (grandmother). S_____ asks "Why is teacher not coming today?"
- **B_____ liked program very much. Mrs. R____ said she would rather have home visitors do it (work with B_____) than herself.
- **D_____ looked forward to her Friday when home visitor would go "play" with her. Mrs. E_____ said she was very happy with all the help D_____ got from program.

Effect of Visitations and Materials on Other Family Members

- **Enjoyed the toys and family involvement. They all played together. (Older sisters, _____ & _____).
- **It helped younger children. Mrs. T_____ said even two year old tried to count with teacher.
- **Said toy library was great for J_____ and it helped older kids whom she thinks learned along with J_____.
- **Both boys (child in school and younger child) looked forward to it. Mrs. C_____ wants program started again.

Benefits to Child

**Thinks it helped J_____ very much.
**Very good for E_____.
**Mrs. A_____ said program was very good and helped C_____ very much. She thinks that is reason C_____ is doing so well at school.
**Mrs. M_____ thinks it helped D_____ and A_____ very much. D_____ knew quite a bit by time he went to kindergarten.
**Grandmother said A_____ liked games and toys very much.
**Thinks program was very good for J_____. Mrs. M_____ does not have the time to read and play with the children -- works all the time.
**Mrs. B_____ thinks the program is great. Thinks it helped A_____ to be able to talk to older people (teachers) and overcome his shyness.

Negative Comments

**Does not think her children were helped by Mrs. (home visitor). She feels her younger children are helped by older ones, and she reads to them herself.
**Mrs. Y_____ does not think R_____ was helped at all. Thinks he learned nothing. He is very slow in school now.
**Did not like the visits being so often. Thought every other week would have been enough.
**Liked program but thought S_____ too careless with the toys.

The number of comments on the home visitor and her relationship with the child and other people in the family indicated the importance of this person in implementation. However, the result of mother (or grandmother) and child preferring to wait for the home visitor instead of playing together was not desired.

The survey also indicated that the increase in purchased books and instructional toys and games in the homes came about primarily through direct efforts at making these easily available and recommending purchase. Indirect influence -- that is, seeing the home visitor read a book to a child or use a particular toy, then buying that book or toy at the store -- was not effective.

One mother commented that she had seen several sets of these kinds of toys at the local discount store, that children want her to buy them but they are too expensive. "It's not like getting to play with them free like they did through the school."

Most of the instructional type materials purchased by the parents were purchased at two toy and book demonstrations in November, 1969. A local discount store gave an additional 25 per cent off their price, and let the equipment be brought to the school for demonstration and sale. Such a "party" was requested by the parents again and held before Christmas, 1970.

In summary, most parents, children, home visitors, and staff members were enthusiastic about the benefits of the home visitation/mobile library program as a form of parental involvement. Whether or not an increase in adult-child interaction can be maintained without the continuing input of the weekly visit is not known nor is it known whether the positive benefits will actually help the child in school.

THE SPANISH TUTORIAL PROGRAM

In the program year 1969-70 a small scale project to study the feasibility of a Spanish tutorial program for pre-kindergarten children was begun.

At the present time few teachers in early childhood classrooms are bilingual, and the presence of a teaching assistant or aide who speaks both languages does not necessarily improve a child's ability to comprehend or speak the second language. Moreover, all children will not necessarily benefit from instruction in a second language. There is, however, no need to deprive those children who would benefit from upgrading their skills in Spanish, German, Lakota, or any other non-English language.

A possible method of retaining and developing the child's linguistic ability in a language other than English is individual or small group instruction. These tutorial situations can be conducted by a parent, volunteer, or assistant. If a tutorial program is feasible and produces the desired results -- children whose language competency in both languages is increased, who have increased confidence and self-esteem -- it has possibility of wide-spread application. An assistant working under the supervision of a qualified teacher can help those children with a language other than English to retain and upgrade their linguistic skill. Such a situation would extend the possibilities of bilingual education to far more children than are presently being reached by bilingual programs involving whole classrooms.

A description of the program as implemented, tests used, and other pertinent information can be found in the Annual Progress Report, November 1, 1969, to October 31, 1970.

A Spanish version of suitable portions of the Bellugi-Klima Test of Grammatical Comprehension was given to all children of Spanish background in October, 1969. From the results of these tests, knowledge of the family's language habits, and informal evaluation through conversation in Spanish, six children in the morning group and six children in the afternoon group, making a total of twelve, were selected to participate in the Spanish Tutorial Program. Seven were four years old; five were three years old. Other children whose family background indicated they might be more proficient in Spansih than indicated by the test results were given opportunities to participate. In most cases, the test results were confirmed.

Children were not required to participate in the tutorial program. The tutor invited the child to go for a walk or to play some games with him. The child was free to refuse. The tutoring session was terminated whenever the child lost interest. No time limit was placed on the length of the child's stay; that was left to the discretion of the tutor. As more learning activities were added, and the tutors became more proficient in using and changing them to follow the children's interests, the children stayed longer. Most sessions averaged fifteen to twenty minutes. Frequently, two children went together, especially on walks.

Records were kept of the number of times a child was asked, the number of times he participated or declined to participate, the length of time he spent in a tutoring session, the activities in which he engaged, and significant responses. Records were also kept of those activities most productive of language and most interesting to the children.

During the final two weeks of school, the Spanish tutor administered the Bellugi-Klima test to all the children who had been in the Spanish Tutorial Program. Because of illness and absences, two children did not receive post-tests, and one was unable to complete the test.

The brevity (7 months), newness of the program, and the small number of children involved precluded any but the most tentative conclusions. Test results indicated that comprehension and responsiveness did increase. Records indicated that some children were still speaking in English, even though they comprehended the tutor's Spanish conversation. Most of the children enjoyed the program. Those most eager to participate were those most fluent in Spanish. Implementing a Spanish tutorial program of this type seems to be feasible. Additional refinement of the program and techniques used, and further study of its effectiveness is necessary before any recommendations can be made.

Table 8 shows the mean scores for pre and post-testing on the experimental instrument used. It should be remembered that the test attempted to measure comprehension of the structure of the language, not just word meanings.

Significant gains were made in the number of items answered correctly, and also in the number of items answered incorrectly. The greatest difference between the pre and post-tests came in the no response category. These findings are consistent with results obtained on other instruments.

TABLE 8

A COMPARISON OF THE MEAN SCORES FOR NEW NURSERY SCHOOL PUPILS ON SUITABLE PORTIONS OF THE SPANISH LANGUAGE VERSION OF THE BELLUGI-KLIMA TEST OF GRAMMATICAL COMPREHENSION

(Administered October, 1969, and May, 1970)

	MEAN SCORES		MEAN	
	Oct/69	May/70	DIFFERENCE	t
Correct	28.4 (11.8)	35.8 (14.58)	7.4	1.468*
Incorrect	10.6 (7.06)	16.00 (8.54)	5.4	1.387*
No Response	27.00 (16.87)	14.2 (19.57)	-12.8	-1.703*

N=10

Critical value of t, α = .10 one tailed test, df = 9, t = 1.383.

*Significant

Standard deviations appear in parentheses with the means.

Other hoped for and anticipated benefits of the program cannot be quantified, but are observed and felt. One of the goals of the program was to get the child to realize that there are two languages involved, Spanish and English, and to have a sense of pride in his ability to speak both. At the beginning of the year, when the tutor spoke in Spanish, the child often comprehended, then replied in English. At that time, the tutor did not insist on Spanish. Later, when the child replied in English, the tutor said "Yes, that is right, but you said it in English. What is it in Spanish?" This and other similar comments led a three year old child to the awareness of language evidenced in the following incident. In the classroom, A_____ watched the teacher and another child play a game involving colors. The child identified a color as brown, and A_____ volunteered "And in Spanish it would be 'café'."

One of the most important developments during the year was not in development of the Spanish language, but in attitude. When the program first began and for sometime afterward, there was a hesitancy on the part of the children to speak Spanish, even when encouraged to do so. When they did converse, there was considerable self-consciousness. Perhaps the most dramatic evidence of this occurred in B_____, a child of Spanish background who was highly proficient in English, and who loved books and stories. She was not at all interested in being involved until the Spanish tutor began to read in Spanish to a group of children in the classroom. A non-Spanish speaker asked "Why are you doing it in Spanish?" B_____ indignantly replied "Because it is written in Spanish."

SECTION FOUR

EVALUATION INSTRUMENTS

The following section gives a brief description of each evaluation instrument used. The data chart in Section V reports when it was used, or when and to whom it was given. The Bellugi-Klima Test of Grammatical Comprehension and the Task Accomplishment Inventories developed or revised at the New Nursery School in the program year 1968-69 are available in the 1968-69 Final Report.

WECHSLER PRESCHOOL AND PRIMARY SCALE OF INTELLIGENCE[1]

Based on his belief that the years four through six mark a well defined period in the child's mental development, David Wechsler constructed the Wechsler Preschool and Primary Scale of Intelligence (WPPSI). He viewed the child of this age as expressing his abilities in a variety of ways and assumed that those abilities may be systematically appraised through an appropriate battery of tests.

Each of the subtests may be considered as measuring a different ability. The subtests comprising the Verbal IQ score are Information, Vocabulary, Arithmetic, Similarities, and Comprehension, with Sentences as an alternate subtest. The Performance IQ score is determined by five subtests, Animal House, Picture Completion, Mazes, Geometric Design, and Block Design, with Animal House Retest as an alternate.

When combined into a composite score, these subtests may be considered as a measure of overall or global intellectual capacity. The intelligence quotient expresses the child's mental endowment relative to children his own age. WPPSI IQ's are deviation IQ's, measures of relative position calculated in terms of the degree to which the child's score differs from the mean of his age group. Verbal, Performance, and Full Scale IQ's may be obtained.

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[1] David Wechsler, Wechsler Preschool and Primary Scale of Intelligence, (Psychological Corporation, 304 East 45th Street, New York, N.Y. 10017).

STANFORD-BINET INTELLIGENCE SCALE[1]

The limitations and advantages of this widely used scale of general mental or scholastic ability are well known. It is by no means "culture-fair" or independent of the child's background experience. As such, it is far from ideal to use with children from culturally different or from disadvantaged backgrounds. It is, however, one of the better tests of general ability for young children.

GOODENOUGH-HARRIS DRAWING TEST (DRAW-A-MAN)[2]

"Of the many tests of intelligence, the Goodenough Draw-A-Man Test (1926) is perhaps the most unusual in basic conception, brevity and general convenience. It has been widely used to survey the intellectual status of young children...."[3] It yields a single score which, in the age range of four or five to fourteen or fifteen, usually correlates substantially with measures of general mental or scholastic ability.

THE PRESCHOOL INVENTORY[4]

The Preschool Inventory (PSI) was constructed to give some indication of the child's achievement in areas considered basic and necessary for later success in school. The inventory was originally designed for the disadvantaged child and recognized that this child's culture gave him a less favorable background for functioning in school. Thus, there was no attempt to develop a culture-free inventory. Instead, the author hoped to emphasize how wide the discrepancy was between children of different backgrounds on several indices of achievement prior to any preschool experience. A second goal of the instrument was to make it sensitive to experience and thus demonstrate changes associated with education.

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[1] Lewis M. Terman and Maud A. Merrill. Stanford-Binet Intelligence Scale. Boston: Houghton Mifflin Company, 1960.

[2] Dale B. Harris. Children's Drawings as Measures of Intellectual Maturity. New York: Harcourt, Brace & World, Inc., 1963.

[3] Ibid. p. 1.

[4] Bettye M. Caldwell and David Soule. The Preschool Inventory, Educational Testing Service, Berkeley, California, 1967.

On the basis of preliminary factor analysis, the original inventory was condensed to one that could be administered in fifteen minutes. The version used includes items chosen to reflect certain significant factors. The first factor is called Personal-Social Responsiveness. Here the inventory requires the child to give knowledge about his own personal world and to carry out both simple and complicated verbal instructions given by an adult. The second factor is called Associative Vocabulary. Here the child must demonstrate awareness of a word's meaning or an underlying relationship by an action or a verbal response. The third factor is called Concept Activation. If the child does well in this area he can label quantities, make judgments of more or less, recognize positions, is aware of certain sensory attributes, and is able to duplicate simple visual configurations.

In reporting, Personal-Social Responsiveness is listed as Factor A; Associative Vocabulary as Factor B; Concept Activation, Numerical as Factor C_1; and Concept Activation, Sensory as Factor C_2. The original standardization sample included 171 Head Start children.

CINCINNATI AUTONOMY TEST BATTERY[1]

The Cincinnati Autonomy Test Battery (CATB) was developed by Thomas J. Banta to study the effects of early childhood education. According to the author, the total battery is concerned with self-regulating behaviors that facilitate effective problem solving. The test attempts to get at the ways in which a child solves a problem, not just his ability to perform a task in some predetermined manner.

Innovative Behavior, the only subtest used in this project, was assessed by the Dog and Bone test. The child is shown two paths a dog might take to get to his bone, then asked to find other ways for the dog to get to his bone. Only novel responses are given credit. The assumption is that an autonomous child should be able to see alternatives and generate new ways of solving the problem, rather than repeating fixed ways. Instead of requiring verbal responses the innovative behavior is assessed by sensory-motor methods.

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[1] Thomas J. Banta, Cincinnati Autonomy Test Battery, University of Cincinnati, Cincinnati, Ohio.

TASK ACCOMPLISHMENT INVENTORIES

The Task Accomplishment Inventories were designed to evaluate the child's acquisition of specific concepts that are emphasized in the curriculum at New Nursery School. They include inventories for:

1. Color
2. Shape
3. Size
4. Location
5. Number
6. Conjunctions (and/or)
7. Negative and Affirmative Statements (is/is not)

The inventories of color, shape, and location measure both comprehension and production (verbal expression of the concept). No effective test of production was compiled for size, conjunctions, and negative/affirmative statements. No test of comprehension for number was developed.

Objects from the classroom were selected for inclusion in a test kit prepared for each particular inventory. The tester administered the tests informally in the classroom or in the play yard as the occasion and interest of the child permitted.

The inventories of conjunction and negative and affirmative statements were taken from the Bellugi-Klima Test of Grammatical Comprehension, and are reported there. (See the Bellugi-Klima Test of Grammatical Comprehension below.)

BELLUGI-KLIMA TEST OF GRAMMATICAL COMPREHENSION[1]

The Test of Grammatical Comprehension is an instrument to evaluate the child's understanding of certain grammatical, structural, and lexical items that are essential to fluency in language. The problems are set up on approximate levels of difficuly, based on appearance of constructs in children's speech, other comprehension tests, and proposed linguistic research. Such things as inflectional endings to indicate singular and plural, the order of noun and object in the active and passive voices, the placement of modifiers, prepositions, and indicators of negation and conjunction, are included. The child manipulates objects in response to directions given by the tester.

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[1] Ursula Bellugi-Klima, Test of Grammatical Comprehension, National Laboratory Early Childhood Education, Illinois University, Urbana, Illinois, 1968.

The version of the instrument used was experimental in nature. From item analyses of the results and observation of children's reactions, the instrument has been revised.

CATEGORIES TEST[1]

The Categories Test ("C" Test) was developed at New Nursery School in previous years to test the ability of a child to categorize or group familiar objects into pairs in a predetermined fashion. The test consists of a series of ten stimulus items and ten response items.

Responses are scored as 'E' - Expected, 'O' - Other, and 'N' - No response. The Other response may not necessarily be wrong. The expected response is indicative of the type of convergent response often emphasized in the early grades in school.

TYPING BOOTH INFORMATION

The typing booth activities may be summarized as follows:

FREE EXPLORATION

1. The child is free to explore the booth and the typewriter with no instruction, rules, or advice. The child discovers the return key and that the typewriter works only when he does not jam the keys. The booth assistant responds to the child - naming letters typed, answering his questions, etc. The typewriter is locked in upper case.

SEARCH AND MATCH

2. A magnetic letter is placed on a board beside the child. The typewriter is turned on only when the child strikes this letter.

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[1] Glen Nimnicht, *et al.*, "C" Test, New Nursery School, 1203 Fourth Street, Greeley, Colorado 80631. 1967.

3. A letter or numeral is presented on a card. The typewriter works only when the correct match is made.

DISCRIMINATION

4. The cards presented show two letters. The child is to type the one named by the booth assistant.

5. The booth assistant writes one to four upper case letters across the top of a chalkboard and the same lower case letters across the bottom in a different order. The child draws a line from each upper case letter to its corresponding lower case letter.

6. The shift lock key is released and the child is shown cards with upper and lower case letters on them. The child must use the shift key correctly.

7. This step is like step 3 except only lower case letters are on the cards.

WORDS AND STORIES

8. A word supplied by the child is printed by the booth assistant and typed by the child. When the child recognizes eight to ten words he may dictate a story to the booth assistant to print. The child then types his story.

CLASSROOM-RELATED ACTIVITIES

9. Several games are available to the child. They are all listed under /9/, as they are not presented in order of difficulty.

   Step 1 -- Word discrimination - Durrell-Murphy cards. Picture cards with the word for the picture and two similar words (pat, sat, cat). The typewriter works only when the correct combination of letters is typed.

   Step 2 -- Notes or Messages
   The booth assistant prints a message dictated by the child. After typing the message, the child takes it to the friend in the classroom for whom it was intended.

Step 3 -- Word Discrimination with phonograms
The typewriter works only when the child types out the word the booth assistant has covered on the phonogram.

BRINGING A BOOK TO THE BOOTH

Step 4 -- The child chooses a book to take to the booth. He may either type words or sentences from the book or have the booth assistant read the book to him.

SELF-CONCEPT INTERVIEW

The Self-Concept Interview was compiled by Glen Nimnicht and Ann Fitzgibbon.[1] It was designed to evaluate the child's self image as related to school. A picture resembling the child is used. Specific questions are asked about the child in the picture and the response scored on a scale of 0-2.

BEHAVIOR RATING FORM[2]

The Behavior Rating Form requests the teachers to rate each child on a 13 item, five-point scale on behaviors presumed to be related to the child's self-esteem.

Only the first ten items of Stanley Coopersmith's (1967) behavior rating schedule were used. Items "*referred to such behaviors as the child's reaction to failure, self-confidence in a new situation, sociability with peers, and the need for encouragement and reassurance....On theoretical and empirical grounds, the behaviors were assumed to be an external manifestation of the person's prevailing self appraisal.*"[3] In the analysis this is listed as Behavior Rating: Self-Concept.

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[1] Ann Fitzgibbon and Glen Nimnicht, Self-Concept Interview, Far West Laboratory for Educational Research and Development, Berkeley, California, 1967.

[2] Stanley Coopersmith, The Antecedents of Self-Esteem, San Francisco: W. H. Freeman and Company, 1967, p. 267.

[3] Ibid. p. 10-11.

TEACHER CLASS RANKING FORM

The class ranking form was devised at New Nursery School to collect the teacher's opinion of the child's standing within his class. The opinion is given on a percentage scale from the top ten per cent to the lower ten per cent. Teachers were asked to estimate how the child is performing in comparison to the rest of the class in reading, arithmetic, independence, attention span, and appropriate behavior.

The class standing of the student was coded as follows:

1. If the student was in the lower 10% of the class.
2. If the student was in the next 20% of the class.
3. If the student was in the middle 40% of the class.
4. If the student was in the upper 20% of the class.
5. If the student was in the upper 10% of the class.

SECTION FIVE

LIMITATIONS

There are always dangers inherent in drawing conclusions and making generalizations and the present study is subject to these dangers. In addition, the final outcomes of this study might possibly have been influenced by a number of limiting factors:

1. The age characteristics of the sample population involved impose limitations upon any research involving quantitative testing, particularly when the subjects are three, four, and five year old children. Some children refuse to be tested. Some the tester cannot secure a response from or understand.

2. Language difficulties, cultural differences, and limited experiential backgrounds all contribute a degree of difficulty to testing, but they certainly do not make such measurement impossible.

3. Test results can be influenced by the affective reactions of the children tested despite the use of well qualified individuals in administering the tests. In the present study, every effort was made to make evaluation non-threatening to every child. Each tester became familiar with each child he tested, did not interrupt the activities of the children, and administered all tests in the respective schools wherein the children were enrolled.

4. Additional difficulty was encountered by reason of a degree of mobility among pupils, by absences at the time certain test batteries were administered, and by the fact that tests used in the public schools varied from school to school. In some instances, the number of subjects in the various groups was very small. These small groups make statistical analysis very difficult and seriously limit generalizations.

Despite the possible limitations indicated, the present study has produced considerable reliable information concerning the comparisons made. It has also produced much data concerning a variety of variables involved, in the testing instruments used in the study, and in a number of the strategies and/or materials used in the New Nursery School program.

SECTION SIX

1969-70 ANALYSIS OF NEW NURSERY SCHOOL FIRST YEAR PUPILS

Charts 1 and 2 which follow indicate in tabular and diagramatic form respectively the total data collection schedule used and an overview of the analyses made in Sections Six and Seven.

CHART 1

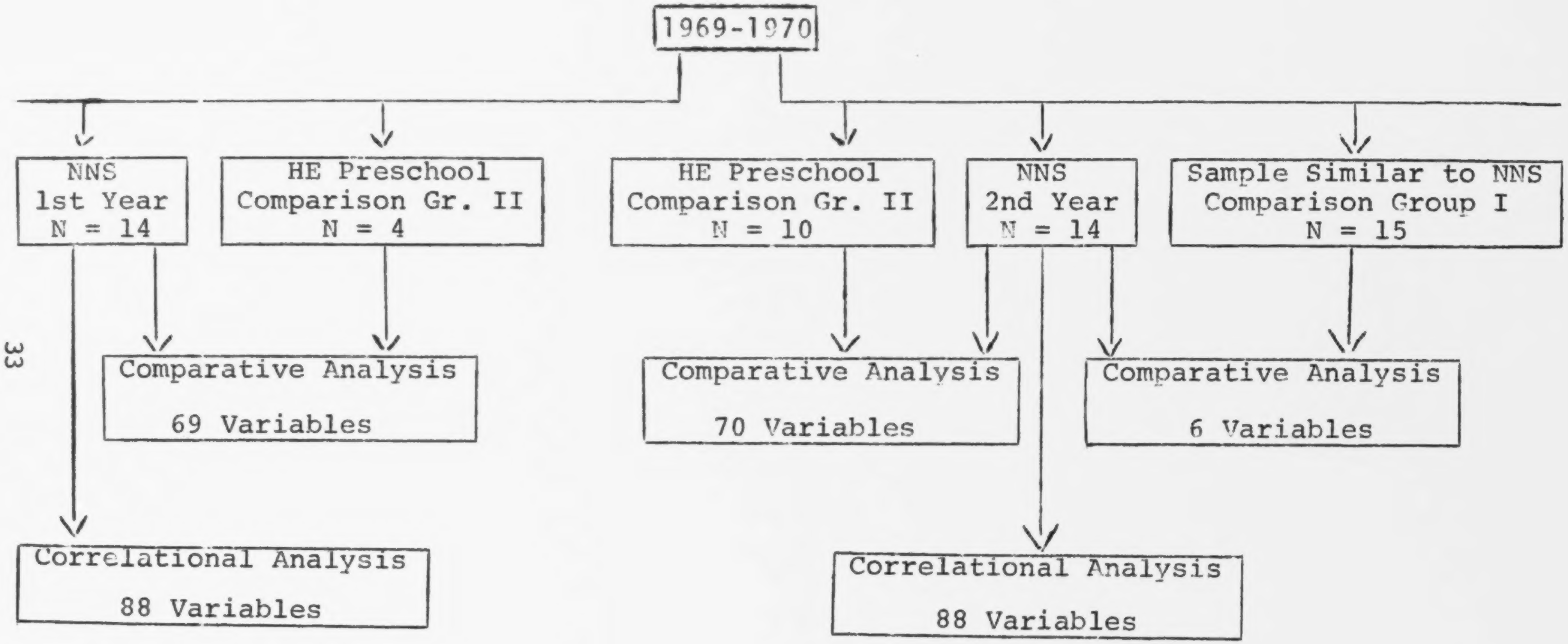
DATA COLLECTED FOR NEW NURSERY SCHOOL PROJECT 1969-70

(All tests administered by New Nursery School were administered by or under the direction of qualified testers from the University of Northern Colorado.)

GROUP	SEPTEMBER 1969	OCTOBER 1969	NOV. 1969	DEC. 1969	MARCH 1970	APRIL 1970	MAY 1970	SEPTEMBER 1970
New Nursery School	WPPSI Stanford-Binet Preschool Inventory Task Accomplishment Inventory Birthdate Attendance——→ Typing Booth Information——→		Bellugi-Klima		CATB (Inn. Behavior)	"C" Test Task Accomplishment Inventories Bellugi-Klima	Preschool CATB Behavior Rating Form Self-Concept Interview	WPPSI
Comparison Group II Home Economics Preschool	WPPSI Birthdate Attendance——→	Task Accomplishment Inventory	Bellugi-Klima		CATB (Inn. Behavior)	"C" Test Task Accomplishment Inventories Bellugi-Klima	Preschool Inventory CATB Self-Concept Interview	WPPSI
Comparison Group I Sample similar to NNS selected in kindergarten	Birthdates Attendance——→ Standardized tests given in public schools——→						Behavior Rating Form Teacher Class Ranking Form Self-Concept Interview	WPPSI
NNS Graduates and their respective comparison groups	Attendance——→ Standardized tests given in public schools——→		JANUARY 1970 Stanford-Binet Draw-A-Man to graduates and comparison in third grade				Behavior Rating Form Teacher Class Ranking Form Self-Concept Interview	

CHART 2

SECTIONS SIX AND SEVEN
1969-70 COMPARISONS AND CORRELATIONS


1969-1970
NNS 1st Year N = 14
HE Preschool Comparison Gr. II N = 4
HE Preschool Comparison Gr. II N = 10
NNS 2nd Year N = 14
Sample Similar to NNS Comparison Group I N = 15
Comparative Analysis 69 Variables
Comparative Analysis 70 Variables
Comparative Analysis 6 Variables
Correlational Analysis 88 Variables
Correlational Analysis 88 Variables

For ease in reading, Comparison Group I, consisting of children from cultural and sociological backgrounds similar to that of New Nursery School children, will be referred to as "Similar Sample." Comparison Group II, consisting of children from advantaged circumstances attending the University of Northern Colorado Home Economics Preschool, will be referred to as HE Preschool First Year and HE Preschool Second Year. The experimental group will be referred to as NNS First Year and NNS Second Year.

COMPARISONS

At the time of data collection, there were two different groups of pupils enrolled in the New Nursery School. One group was in its first year of attendance and the other group was in its second year of attendance. This phase of the analysis is concerned with the first year group of pupils who were three years old at the time of school entrance.

The comparison group for the first year children consisted of a group of pupils enrolled in the Home Economics Preschool for one year. The pupils of the Home Economics Preschool differ from those of the New Nursery School on several important economic, educational, and cultural variables. The Home Economics Preschool draws heavily from families of professional men and women and graduate students, whose children should have a high degree of success in school. Therefore, this group can in no way be considered a control group. They were used only as a basis for comparison to see where differences existed and how great those differences were. Pre-test data were obtained on the Task Accomplishment Inventories and the Bellugi-Klima in order to determine whether or not the performance of the experimental group came closer to that of the comparison group as a consequence of the program of the New Nursery School.

The Home Economics Preschool comparison group consisted of only four children. At the time of selection, there were ten children in the group. Six of these children moved from the area or discontinued attendance before post-testing could be completed, leaving only four pupils in this comparison group. Thus, the 1969-70 analysis involved the comparison of fourteen New Nursery School first year pupils with four Home Economics Preschool first year pupils. The data obtained from the first year pupils is too important to delete from this report but care must be taken not to generalize the results of this section.

AGE

TABLE 9

MEAN AGE DATA FOR NEW NURSERY SCHOOL FIRST YEAR AND HOME ECONOMICS PRESCHOOL FIRST YEAR PUPILS

	NEW NURSERY SCHOOL FIRST YEAR PUPILS	H. E. PRESCHOOL FIRST YEAR PUPILS
Age in Months	49.538 (4.539)*	53.250 (.957)*
Mean Differences		-3.712

*Throughout the remainder of this report, numerals in parentheses will be standard deviations.

ATTENDANCE

The Home Economics Preschool followed the university year while the New Nursery School followed the schedule of the local school district, thus the lower total for the Home Economics Preschool.

TABLE 10

MEAN ATTENDANCE DATA FOR NEW NURSERY SCHOOL FIRST YEAR AND HOME ECONOMICS PRESCHOOL FIRST YEAR PUPILS

	NEW NURSERY SCHOOL FIRST YEAR PUPILS	H. E. PRESCHOOL FIRST YEAR PUPILS
Days Present	142.429 (23.287)	121.500 (9.950)
Days Absent	25.786 (16.400)	13.250 (9.287)
Totals	168.214 (20.097)	134.750 (8.500)

According to the research design, the Wechsler Preschool and Primary Scale of Intelligence was to be used as a standardized measure of general intelligence or ability. However, as testing proceeded, it became obvious that many of the children were unable or unwilling to take this test. To obtain some kind of evaluation, the Stanford-Binet was administered to those who did not have valid WPPSI scores.

Three children took the WPPSI, five children took the Stanford-Binet. Their scores are listed in Tables 11 and 12. No statistical analysis has been done because of the small number of cases.

No pre-test scores are available on the other eight children, for reasons such as those listed below:

> Couldn't get enough cooperation to test. Tried three times, no results.
>
> _____ attentive and cooperative during the testing period but would not respond verbally.
>
> _____ was very difficult to test -- Examiner was unable to complete the test and seriously doubts the validity of obtained results. _____ seemed both unable to concentrate and unwilling to respond.
>
> _____ was cooperative part of the time. He asked to go with Examiner on several occasions (and did go twice when he asked to). He really seemed to want to go but "couldn't take" the verbal sections and simply refused to try. Examiner doesn't believe he really could be classified as unwilling - rather he seemed unable to understand directions and since he did not understand he appeared to see no sense in becoming involved.
>
> Information was invalidated because ________ would not stay any longer with the tester during the first testing session. She walked to the door and insisted on leaving. ________ would come, but once she was asked questions she wanted to leave the room or she would fidgit and not give any verbal responses.
>
> Eager to "play" but too hyperactive to be able to sustain attention long enough to do anything. Not negative willing to cooperate but unable to. Wanted the attention but simply unable to sustain attention through directions.

Only three of these eight children were in the New Nursery School in Fall, 1970. All three were able to be tested. Their IQ scores on the Stanford-Binet were 79, 125, and 103.

TABLE 11

WECHSLER PRESCHOOL AND PRIMARY SCALE OF INTELLIGENCE SCORES AND IQ FOR THE CHILDREN ON WHOM BOTH PRE AND POST-TEST DATA ARE AVAILABLE

(Administered September, 1969, and September, 1970)

	VERBAL SCALE SCORE		VERBAL IQ		PERFORMANCE SCALE SCORE		PERFORMANCE IQ		FULL SCALE SCORE		TOTAL IQ	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Individual Children	35	46	81	95	34	46	78	95	69	92	78	94
	31	34	76	80	39	36	85	81	70	70	78	78
	28	44	72	92	37	28	82	70	65	72	75	80

TABLE 12

STANFORD-BINET IQ'S FOR THE CHILDREN ON WHOM PRE AND POST-TEST EVALUATIONS ARE AVAILABLE

(Administered September-October, 1969 and September, 1970)

	PRE-TEST	POST-TEST
Individual Children	118	105
	90	101
	92	100
	87	93
	86	101

To obtain some estimate of group comparison, a mean of IQ scores on the WPPSI and the Stanford-Binet was obtained, and comparisons made. Omitted, of course, are those children who were unable or unwilling to take the pre-test. A gain of 6.700 was found.

TABLE 13

COMPARISON OF MEAN IQ SCORES FOR 1969-70 NEW NURSERY SCHOOL FIRST YEAR PUPILS

(Administered September, 1969, September, 1970)

	ADMINISTERED SEPTEMBER, 1969	ADMINISTERED SEPTEMBER, 1970
IQ	88.900 (12.324)	95.600 (13.674)
t-test	t = 1.8670 df = 6	

Critical value of t, α = .10, two tailed test, df = 6, t = 1.943.

The null hypothesis of no difference between the mean IQ score for the New Nursery School First Year Pupils and the mean IQ score for the Home Economics Preschool First Year Pupils was tested using the "t" statistic. A critical value of "t" resulted which implies that the hypothesis of no difference between the mean IQ scores should be rejected in favor of the hypothesis that the mean IQ scores for the two groups are indeed statistically different.

TABLE 14

MEAN IQ DATA FOR NEW NURSERY SCHOOL FIRST YEAR AND HOME ECONOMICS PRESCHOOL FIRST YEAR PUPILS

(Administered September, 1969)

	NEW NURSERY SCHOOL FIRST YEAR PUPILS	H. E. PRESCHOOL FIRST YEAR PUPILS
IQ	88.900 (12.324)	110.333 (-21.433)
Mean Difference		-21.433
t-test	t = -2.6900*	

Critical value of t, $\alpha = .05$, two tailed test, df = 11, t = 2.201.

* Significant

PRESCHOOL INVENTORY

The Preschool Inventory was not given to the Home Economics Preschool pupils, therefore, no comparison between groups is available. However, this test was administered as a pre-test and as a post-test to the New Nursery School pupils. Correlated t-tests were applied in order to establish whether or not significant gains were made by the New Nursery School pupils. A significant increase was noted in each category of the test. Six of the first year pupils either refused or were unable to take the pre-test. Of the six, four were able to complete it in the spring, one refused, one moved. The mean total spring score for these four was 41.5.

TABLE 15

COMPARISON OF PRESCHOOL INVENTORY MEAN SCORES FOR NEW NURSERY SCHOOL FIRST YEAR PUPILS

(Administered September, 1969, and May, 1970)

PRESCHOOL INVENTORY	ADMINISTERED SEPTEMBER, 1969	ADMINISTERED MAY, 1970	t
Subtest A Personal-Social Responsiveness	6.778 (3.552)	12.333 (3.197)	3.820*
Subtest B Associative Vocabulary	1.556 (.685)	4.222 (2.572)	2.874*
Subtest C_1 Concept Activation, Numerical	3.556 (1.707)	7.111 (2.601)	3.707*
Subtest C_2 Concept Activation, Sensory	5.667 (1.764)	11.667 (3.055)	7.199*
Total	17.556 (6.039)	35.333 (8.246)	5.289*

Critical value of t, $\alpha = .05$, one tailed test, df = 8, t = 1.860.

* Significant

BELLUGI-KLIMA TEST OF GRAMMATICAL COMPREHENSION

The Bellugi-Klima Test was administered to the New Nursery School pupils and the Home Economics Preschool pupils in November and December, 1969, and in May, 1970. The following tables summarize the results of this data. A correlated t-test was applied in order to establish whether or not a significant gain was made by the New Nursery School group on total score. The mean total score gain was found to be statistically significant.

As noted in the section describing instruments used, this instrument has been revised taking into account the results reported here. Some items were too difficult for either group, for example, Subtest 15.

TABLE 16

COMPARISON OF MEAN SCORES FOR NEW NURSERY SCHOOL FIRST YEAR PUPILS ON THE BELLUGI-KLIMA TEST OF GRAMMATICAL COMPREHENSION

(Administered November, 1969, and May, 1970)

BELLUGI-KLIMA	NOVEMBER, 1969	MAY, 1970	t
Subtest 1	2.692 (1.251)	3.308 (0.855)	
Subtest 2	4.077 (1.801)	4.769 (1.166)	
Subtest 3	4.154 (1.463)	3.385 (1.193)	
Subtest 4	2.769 (0.832)	3.154 (0.987)	
Subtest 5	4.308 (0.947)	4.000 (1.528)	
Subtest 6	3.000 (0.913)	3.231 (1.423)	
Subtest 7	3.231 (1.691)	4.154 (1.214)	
Subtest 8	1.923 (1.382)	2.846 (1.068)	
Subtest 9	1.462 (1.266)	2.769 (1.589)	
Subtest 10	2.385 (1.044)	2.462 (0.776)	
Subtest 11	2.538 (1.664)	2.615 (1.710)	
Subtest 12	4.538 (1.506)	5.154 (0.987)	
Subtest 13	1.692 (1.032)	1.385 (1.325)	
Subtest 14	2.615 (1.446)	3.231 (1.013)	
Subtest 15	0.615 (0.870)	0.923 (1.256)	
Subtest 16	1.462 (1.127)	1.462 (1.050)	
Total	43.462 (8.048)	48.846 (7.198)	2.838*

Critical values of t, α = .05, one tailed test, df = 13, t = 1.771.

* Significant

TABLE 17

A COMPARISON OF THE MEAN SCORES FOR THE NEW NURSERY SCHOOL FIRST YEAR AND THE HOME ECONOMICS PRESCHOOL FIRST YEAR PUPILS ON THE BELLUGI-KLIMA

(Administered November and December, 1969)

BELLUGI KLIMA	NEW NURSERY SCHOOL FIRST YEAR PUPILS	H. E. PRESCHOOL FIRST YEAR PUPILS	MEAN DIFFERENCE
Subtest 1	2.692 (1.251)	4.000 (0.000)	-1.308
Subtest 2	4.077 (1.801)	5.250 (.957)	-1.173
Subtest 3	4.154 (1.463)	4.250 (2.062)	- .096
Subtest 4	2.769 (0.832)	3.500 (1.000)	- .731
Subtest 5	4.308 (0.947)	5.500 (1.000)	-1.192
Subtest 6	3.000 (0.913)	4.000 (.861)	-1.000
Subtest 7	3.231 (1.691)	3.500 (1.291)	- .269
Subtest 8	1.923 (1.382)	3.500 (.577)	-1.577
Subtest 9	1.462 (1.266)	3.500 (1.000)	-2.038
Subtest 10	2.385 (1.044)	3.500 (1.000)	-1.115
Subtest 11	2.538 (1.664)	4.250 (1.258)	-1.712
Subtest 12	4.538 (1.506)	4.750 (.957)	- .212
Subtest 13	1.692 (1.032)	2.000 (2.449)	- .308
Subtest 14	2.615 (1.446)	5.250 (.957)	-2.635
Subtest 15	0.615 (0.870)	.750 (.957)	- .135
Subtest 16	1.462 (1.127)	3.000 (1.414)	-1.538
Total Score	43.462 (8.048)	60.500 (5.196)	-17.038

TABLE 18

A COMPARISON OF THE MEAN SCORES FOR THE NEW NURSERY SCHOOL FIRST YEAR AND THE HOME ECONOMICS PRESCHOOL FIRST YEAR PUPILS ON THE BELLUGI-KLIMA TEST

(Administered May, 1970)

BELLUGI-KLIMA	NEW NURSERY SCHOOL FIRST YEAR PUPILS	H. E. PRESCHOOL FIRST YEAR PUPILS	MEAN DIFFERENCE
Subtest 1	3.308 (0.855)	4.000 (0.000)	- .692
Subtest 2	4.769 (1.166)	6.000 (0.000)	-1.231
Subtest 3	3.385 (1.193)	4.500 (1.915)	-1.115
Subtest 4	3.154 (0.987)	3.250 (.500)	- .096
Subtest 5	4.000 (1.528)	6.000 (0.000)	-2.000
Subtest 6	3.231 (1.423)	5.000 (0.000)	-1.769
Subtest 7	4.154 (1.214)	5.250 (.500)	-1.096
Subtest 8	2.846 (1.068)	3.250 (.500)	- .404
Subtest 9	2.769 (1.589)	3.750 (.500)	- .981
Subtest 10	2.462 (2.462)	3.500 (1.000)	-1.038
Subtest 11	2.615 (1.710)	4.750 (1.500)	-2.135
Subtest 12	5.154 (0.987)	5.250 (.957)	- .096
Subtest 13	1.385 (1.325)	4.250 (2.217)	-2.865
Subtest 14	3.231 (1.013)	5.000 (1.155)	-1.769
Subtest 15	0.923 (1.256)	1.000 (.816)	- .077
Subtest 16	1.462 (1.050)	3.750 (.500)	-2.288
Total Score	48.846 (7.198)	68.500 (6.608)	-19.654

TASK ACCOMPLISHMENT INVENTORIES

The Task Accomplishment Inventories were administered to the New Nursery School pupils and the Home Economics Preschool pupils in September, 1969, and in May, 1970.

A t-test was applied to determine whether or not a significant gain was made by the New Nursery School pupils when mean scores for the test given in September, 1969, were compared with mean scores for the test given in May, 1970. Every section of the test except Relative Location (comprehension) showed a significant gain.

TABLE 19

COMPARISON OF TASK ACCOMPLISHMENT MEAN SCORES FOR NEW NURSERY SCHOOL FIRST YEAR PUPILS

(Administered September, 1969, and May, 1970)

TASK ACCOMPLISHMENT INVENTORIES		ADMINISTERED SEPTEMBER, 1969	ADMINISTERED MAY, 1970	n	t
COLOR	Comprehension	1.385 (1.389)	7.077 (1.940)	13	9.787*
	Production	1.539 (1.737)	6.385 (2.338)	13	4.981*
NUMBER (Counting)	Rote	2.400 (3.073)	8.100 (5.504)	10	3.662*
	Rational	3.500 (4.193)	7.167 (4.913)	12	2.338*
SHAPE	Comprehension	1.462 (1.009)	2.923 (1.385)	13	3.075*
	Production	0.168 (.373)	2.417 (1.038)	12	8.074*
RELATIVE SIZE	Comprehension	5.000 (2.345)	14.583 (2.178)	12	10.013*
RELATIVE LOCATION	Comprehension	8.077 (2.018)	8.539 (2.170)	12	.823
	Production	2.500 (2.466)	6.083 (2.060)	12	4.694*

Critical values of t, $\alpha = .05$, two tailed test, df = 9, t = 2.262; df = 11, t = 2.201; df = 12, t = 2.179.

* Significant

Comparisons of the mean scores of first year pupils in both New Nursery School and Home Economics Preschools showed reductions in the mean differences for six of the nine categories of the test when the September, 1969, administration of the test was compared with the May, 1970, administration of the test.

TABLE 20

A COMPARISON OF THE MEAN SCORES FOR THE NEW NURSERY SCHOOL FIRST YEAR AND THE HOME ECONOMICS PRESCHOOL FIRST YEAR PUPILS AS TAKEN FROM THE TASK ACCOMPLISHMENT INVENTORY

(Administered September, 1969)

TASK ACCOMPLISHMENT INVENTORIES		NEW NURSERY SCHOOL FIRST YEAR PUPILS	H. E. PRESCHOOL FIRST YEAR PUPILS	MEAN DIFFERENCE
COLOR	Comprehension	1.385 (1.446)	8.000 (1.155)	- 6.615
	Production	1.538 (1.808)	8.000 (.816)	- 6.462
NUMBER (Counting)	Rote	2.400 (3.239)	32.500 (44.785)	-30.100
	Rational	3.500 (4.380)	18.000 (14.071)	-14.500
SHAPE	Comprehension	1.462 (1.050)	2.750 (1.285)	- 1.288
	Production	0.167 (0.389)	1.250 (1.258)	- 1.083
RELATIVE SIZE	Comprehension	5.000 (2.449)	13.000 (2.000)	- 8.000
RELATIVE LOCATION	Comprehension	8.077 (2.100)	10.750 (1.258)	- 2.673
	Production	2.500 (2.576)	9.500 (1.291)	- 7.000

TABLE 21

A COMPARISON OF THE MEAN SCORES FOR THE NEW NURSERY SCHOOL FIRST YEAR AND THE HOME ECONOMICS PRESCHOOL FIRST YEAR PUPILS AS TAKEN FROM THE TASK ACCOMPLISHMENT INVENTORIES

(Administered May, 1970)

TASK ACCOMPLISHMENT INVENTORIES		NEW NURSERY SCHOOL FIRST YEAR PUPILS	H. E. PRESCHOOL FIRST YEAR PUPILS	MEAN DIFFERENCE
COLOR	Comprehension	6.857 (2.107)	9.000 (0.000)	- 2.143
	Production	6.071 (2.615)	9.000 (0.000)	- 2.929
NUMBER (Counting)	Rote	9.214 (5.323)	41.000 (43.977)	-31.786
	Rational	7.286 (5.121)	38.750 (32.315)	-31.464
SHAPES	Comprehension	3.000 (1.414)	3.500 (1.000)	- .500
	Production	2.714 (1.267)	3.000 (1.826)	- .286
RELATIVE SIZE	Comprehension	14.385 (2.293)	17.500 (2.082)	- 3.115
RELATIVE LOCATION	Comprehension	8.286 (2.367)	11.250 (.957)	- 2.964
	Production	5.769 (2.351)	10.250 (.957)	- 4.481

CATEGORIES TEST

Responses to the Categories Test ("C" Test) are grouped as 'E', 'O', and 'N'. The number of expected (proper or correct) responses is represented by 'E', the number of unexpected responses by 'O', and the number of times the individual did not respond is represented by 'N'. The Other response may not necessarily be wrong. The expected response is indicative of the type of convergent or "what goes with this" often emphasized in the early grades in school.

A t-test was applied and the results indicate that the Home Economics Preschool children scored significantly higher on this test than did the pupils of the New Nursery School.

TABLE 22

COMPARISON OF MEAN SCORES FOR NEW NURSERY SCHOOL FIRST YEAR AND HOME ECONOMICS PRESCHOOL FIRST YEAR PUPILS FROM THE CATEGORIES TEST

(Administered April, 1970)

CATEGORIES TEST	NEW NURSERY SCHOOL FIRST YEAR PUPILS	H. E. PRESCHOOL FIRST YEAR PUPILS	T-TEST	MEAN DIFFERENCE
Expected	2.786 (2.054)	7.000 (1.155)	-3.8922*	-4.214
Other	6.143 (2.033)	1.750 (.957)	4.1246*	4.393
No Response	0.071 (0.267)	0.250 (.500)	- .9724	- .179

Critical value of t, α = .05, two tailed test, df = 16, t = 2.120.

* Significant

CINCINNATI AUTONOMY TEST BATTERY (Innovative Behavior)

The Innovative Behavior section of the Cincinnati Test was given to the New Nursery School and Home Economics Preschool First Year pupils. The Home Economics Preschool group scored significantly higher on the test. Even though the first year New Nursery School children scored significantly lower than the Home Economics Preschool group, they scored higher than the New Nursery School three year olds from the previous year, whose mean score was 3.1.

TABLE 23

COMPARISONS OF MEAN SCORES ON THE INNOVATIVE BEHAVIOR SECTION OF THE CINCINNATI AUTONOMY TEST BATTERY FOR NEW NURSERY SCHOOL FIRST YEAR AND HOME ECONOMICS PRESCHOOL FIRST YEAR PUPILS

(Administered March, 1970)

CINCINNATI TEST	NEW NURSERY SCHOOL FIRST YEAR PUPILS	H. E. PRESCHOOL FIRST YEAR PUPILS	MEAN DIFFERENCE
Innovative Behavior	5.337 (3.114)	10.750 (6.551)	-5.413
t-test	t = -2.2879*		

Critical value of t, $\alpha = .05$, two tailed test, df = 14, t = 2.145.

* Significant

SELF-CONCEPT INTERVIEW

A comparison was made of the mean scores from the Self-Concept Interview for New Nursery School First Year and Home Economics First Year Pupils. The t-test results indicated that no significant difference existed between the self-concept scores for the two groups.

TABLE 24

COMPARISON OF MEAN SCORES FROM THE SELF-CONCEPT INTERVIEW FOR NEW NURSERY SCHOOL FIRST YEAR AND HOME ECONOMICS PRESCHOOL FIRST YEAR PUPILS

(Administered April, 1970)

	NEW NURSERY SCHOOL FIRST YEAR PUPILS	H. E. PRESCHOOL FIRST YEAR PUPILS	MEAN DIFFERENCE
Self-Concept Interview	22.357 (9.279)	27.250 (8.884)	-4.893
t-test	t = -.9724		

Critical value of t, α= .05, two tailed test, df = 16, t = 2.120.

CORRELATIONS

The following section reports the examination of the intercorrelations of the eighty-eight variables available on the New Nursery School First Year pupils. There was a total of 3,960 intercorrelations. To report every one would be meaningless and confusing. Presented are those correlations deemed essential to the analysis by the investigators.

BEHAVIOR RATING (Self-Concept), SELF-CONCEPT INTERVIEW, and IQ

An intercorrelation matrix was constructed which relates the self-concept scores as recorded on the Behavior Rating Form and the Self-Concept Interview, and IQ scores from fall, 1969.

None of the correlations were significant. It should be noted, however, that the Self-Concept Interview scores were negatively related to both the Behavior Rating Self-Concept and the IQ scores.

TABLE 25

INTERCORRELATIONS OF SELF-CONCEPT INTERVIEW SCORES, BEHAVIOR RATING FORM SCORES AND THE IQ SCORES OF THE NEW NURSERY SCHOOL FIRST YEAR PUPILS

	BEHAVIOR RATING SELF-CONCEPT	SELF-CONCEPT INTERVIEW	IQ
Behavior Rating Self-Concept		-0.233 df = 12	.498 df = 8
Self-Concept Interview			-.477 df = 8

Critical value of r, $\alpha = .10$, two tailed test,
df = 12, r = .458; df = 8, r = .549.

Only six variables correlated significantly with IQ scores and three of these were negative. This is not too surprising when one considers the limitation of age which is encountered in a program of this type. Many of the three year old youngsters simply refused to be tested. This decrease in the number of cases under consideration had the effect of requiring such a large correlation coefficient in order to have significance that very few variables showed a significant relation to IQ.

TABLE 26

VARIABLES THAT CORRELATE SIGNIFICANTLY WITH IQ SCORES FOR THE NEW NURSERY SCHOOL FIRST YEAR PUPILS

VARIABLES		IQ	
		r	df
Preschool Inventory (September, 1969)	Subtest A Total	-.623 -.712	7 7
Bellugi-Klima (November, 1969)	Subtest 2 Subtest 15	.625 .938	8 8
Bellugi-Klima (May, 1970)	Subtest 16	.592	8

Critical values of r, $\alpha = .10$, two tailed test, df = 7, r = .582; df = 8, r = .549.

TABLE 27

VARIABLES THAT CORRELATE SIGNIFICANTLY WITH THE BELLUGI-KLIMA TOTAL SCORES

(Administered November, 1969)

VARIABLES		BELLUGI-KLIMA TOTALS (November, 1969) r	df
Preschool Inventory (May, 1970)	Subtest C_1 Total	.523 .484	10
Task Accomplishment (September, 1969)	Relative Size (Comprehension)	.618	10
Bellugi-Klima (November, 1969)	Subtest 1 Subtest 2 Subtest 3 Subtest 5 Subtest 7 Subtest 9 Subtest 12	.545 .549 .652 .504 .653 .730 .569	11 11 11 11 11 11 11
Bellugi-Klima (May, 1970)	Subtest 6 Subtest 11 Total	.558 .597 .524	10 10 10
Stanford-Binet	Mental Age	.823	5

Critical value of r, $\alpha = .10$, two tailed test, $df = 1$, $r = .988$; $df = 5$, $r = .669$; $df = 10$, $r = .497$; $df = 11$, $r = .476$.

TABLE 28

VARIABLES THAT CORRELATE SIGNIFICANTLY WITH THE BELLUGI-KLIMA TOTAL SCORE

(Administered May, 1970)

VARIABLES		BELLUGI-KLIMA TOTALS (May, 1970)	
		r	df
Preschool Inventory (September, 1969)	Subtest A	-.755	7
Preschool Inventory (May, 1970)	Subtest C_2	.637	11
Bellugi-Klima (November, 1969)	Subtest 6	-.691	11
	Subtest 9	.502	11
	Subtest 12	.743	10
	Total	.524	10
Bellugi-Klima (May, 1970)	Subtest 2	.710	11
	Subtest 3	.609	11
	Subtest 5	.622	11
	Subtest 6	.630	11
	Subtest 8	.658	11
	Subtest 11	.543	11
Behavior Rating	Self-Concept	.554	11
Attendance	Days Present	.602	11
	Total	.639	11

Critical value of r, α= .10, two tailed test, df = 1, r = .988; df = 7, r = .582; df = 10, r = .497; df = 11, r = .476.

SELF-CONCEPT INTERVIEW

TABLE 29

VARIABLES THAT CORRELATE SIGNIFICANTLY WITH SELF-CONCEPT SCORES FOR NEW NURSERY SCHOOL FIRST YEAR PUPILS

VARIABLES		SELF-CONCEPT INTERVIEW	
		r	df
Age		-.470	12
Task Accomplishment (May, 1970)	Shape (Comprehension)	-.522	11
Bellugi-Klima (November, 1969)	Subtest 1	.622	11
Bellugi-Klima (May, 1970)	Subtest 5 Subtest 9 Total	.503 .538 .554	11 11 11

Critical values of r, α = .10, two tailed test,
df = 11, r = .476; df = 12, r = .458.

TYPING BOOTH

TABLE 30

VARIABLES THAT CORRELATE SIGNIFICANTLY WITH THE HIGHEST PHASE REACHED

VARIABLES		PHASE REACHED	
		r	df
Preschool Inventory (May, 1970)	Subtest C_1 Total	.555 .529	11 11
Task Accomplishment (September, 1969)	Number (Rote Counting)	.831	8
Task Accomplishment (May, 1970)	Color (Comprehension) Number (Rote Counting) Shape (Production)	.578 .519 .599	12 12 12
Bellugi-Klima (November, 1969)	Subtest 11 Subtest 16	.562 .724	11 11
Bellugi-Klima (May, 1970)	Subtest 14	-.570	11
Typing Booth	Times Asked Days Typed Total Minutes Average Minutes	.761 .710 .830 .589	12 12 12 12

Critical values of r, $\alpha = .10$, two tailed test,
df = 8, r = .549; df = 11, r = .476; df = 12, r = .458.

TABLE 31

VARIABLES THAT CORRELATE SIGNIFICANTLY WITH THE NUMBER OF DAYS THE CHILD TYPED

VARIABLES		DAYS TYPED	
		r	df
Cincinnati	Innovative Behavior	.559	10
Preschool Inventory (September, 1969)	Subtest A	.645	8
	Subtest B	.634	8
	Subtest C	.555	8
	Total	.690	8
Task Accomplishment (September, 1969)	Number (Rote Counting)	.840	8
	Number (Rational Counting)	.531	10
Task Accomplishment (May, 1970)	Color (Comprehension)	.679	12
	Shape (Production)	.537	12
	Relative Location (Production)	.545	11
Bellugi-Klima (November, 1969)	Subtest 4	.520	11
	Subtest 16	.712	11
Bellugi-Klima (May, 1970)	Subtest 10	-.526	11
	Subtest 13	.684	11
WPPSI	Performance IQ	.998	1
Typing Booth	Times Asked	.949	12
	Total Minutes	.871	12
	Phase Reached	.710	12

Critical values of r, α = .10, two tailed test,
df = 1, r = .988; df = 8, r = .549; df = 10, r = .497;
df = 11, r = .476; df = 12, r = .458.

TABLE 32

VARIABLES THAT CORRELATE SIGNIFICANTLY WITH THE TOTAL MINUTES SPENT IN THE TYPING BOOTH

VARIABLES		TOTAL MINUTES TYPED	
		r	df
Preschool Inventory (September, 1969)	Subtest A	.551	8
Task Accomplishment Inventory (September, 1969)	Number (Rational Counting)	.847	8
Task Accomplishment Inventory (May, 1970)	Color (Comprehension)	.628	12
	Shape (Production)	.535	12
Bellugi-Klima (November, 1969)	Subtest 11	.486	11
	Subtest 16	.723	11
Bellugi-Klima (May, 1970)	Subtest 10	-.719	11
Typing Booth	Times Asked	.825	12
	Days Typed	.871	12
	Average Minutes	.588	12
	Phase Reached	.830	12

Critical value of r, α = .10, two tailed test, df = 8, r = .549; df = 11, r = .476; df = 12, r = .458.

TABLE 33

VARIABLES THAT CORRELATE SIGNIFICANTLY WITH THE AVERAGE MINUTES TYPED

		AVERAGE MINUTES TYPED	
VARIABLES		r	df
Bellugi-Klima (November, 1969)	Subtest 11	.826	11
Bellugi-Klima (May, 1970)	Subtest 10	-.592	11
Attendance	Total	-.465	12
Typing Booth	Total Minutes Phase Reached	.588 .589	12 12

Crical value of r, $\alpha = .10$, two tailed test,
df = 11, r = .476; df = 12, r = .458.

SECTION SEVEN

1969 - 1970 ANALYSIS OF THE NEW NURSERY SCHOOL SECOND YEAR PUPILS

COMPARISONS

As previously mentioned, at the time of data collection there were two different groups of pupils enrolled at the New Nursery School. This phase of the analysis is concerned with those children who were in their second year of attendance. There were fourteen children in this group.

There were two comparison groups for the second year pupils. The first group (Comparison Group II) was composed of ten second year pupils enrolled in the Home Economics Preschool. This group consisted of advantaged children from upper middle class home environments. The second comparison group (Comparison Group I) consisted of fifteen (15) children similar to the second year pupils in the New Nursery School, but with no preschool experience. This comparison group was selected and tested in September, 1970, at the time they entered kindergarten.

Comparison Group II should not be considered a control group for the New Nursery School Second Year pupils. These children were used simply to determine whether or not experience in the New Nursery School program could lessen the difference between an educationally advantaged child (Home Economics Preeschool) and an educationally disadvantaged child (New Nursery School). Whenever possible, pre-tests and post-tests were given to both the Home Economics Preschool pupils and the New Nursery School children in order to compare pre-differences and post-differences in the two groups.

The Similar Sample is selected as a control group. This group of children will continue to be compared to New Nursery School graduates throughout the longitudinal study.

AGE

TABLE 34

MEAN AGE DATA FOR NEW NURSERY SCHOOL
SECOND YEAR AND HOME ECONOMICS PRESCHOOL
SECOND YEAR PUPILS

	NEW NURSERY SCHOOL SECOND YEAR PUPILS	H. E. PRESCHOOL SECOND YEAR PUPILS
Age in Months	59.071 (3.931)	61.500 (2.799)
Mean Difference		-2.429

ATTENDANCE

The Home Economics Preschool followed the University school year while the New Nursery School followed the schedule of School District Number Six, thus the lower total for the Home Economics Preschool. Attendance for those New Nursery School pupils attending for the second year is better than for those attending for the first year, (first year pupils absent 25.786 days). While this may be merely a function of age, the reverse holds true for the Home Economics Preschool pupils. They were absent more days.

TABLE 35

MEAN ATTENDANCE DATA FOR NEW NURSERY SCHOOL SECOND YEAR AND HOME ECONOMICS PRESCHOOL SECOND YEAR PUPILS

	NEW NURSERY SCHOOL SECOND YEAR PUPILS	H. E. PRESCHOOL SECOND YEAR PUPILS
Days Present	158.786 (12.583)	120.100 (28.637)
Days Absent	18.643 (12.010)	18.200 (28.898)
Total	177.429 (1.505)	138.300 (.486)

WECHSLER PRESCHOOL AND PRIMARY SCALE OF INTELLIGENCE (WPPSI)

The WPPSI was administered in the fall of 1969 to the New Nursery School Second Year pupils and the Home Economics Preschool Second Year pupils. In the fall of 1968 only two children in the New Nursery School group were able to complete the WPPSI. There were fifteen enrolled. After one year in the New Nursery School program ten out of fourteen of these same children were able to be tested. Even though the Home Economics Preschool children scored significantly higher on this test, it most certainly is important to note the marked increase in ability to be tested shown by the New Nursery School children.

The means reported here differ from those in the 1968-69 Final Report because deleting the scores of children who moved changed the means.

TABLE 36

MEAN WECHSLER PRESCHOOL AND PRIMARY SCALE OF INTELLIGENCE SCORES FOR NEW NURSERY SCHOOL SECOND YEAR PUPILS

(Administered Fall, 1969, and Fall, 1970)

VERBAL		VERBAL IQ		PERFORMANCE		PERFORMANCE IQ		TOTAL		TOTAL IQ	
Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
42.556	42.889	90.444	90.558	43.778	46.462	91.556	95.154	86.333	88.846	90.222	91.923
(11.706)	(13.469)	(14.587)	(16.826)	(8.729)	(6.972)	(11.833)	(9.521)	(18.432)	(18.380)	(13.189)	(13.188)
										df = 9, t = 1.686	

Critical value of t, α = .10, two tailed test, df = 9, t = 1.833.

TABLE 37

COMPARISON OF MEAN INTELLIGENCE SCORES FOR NEW NURSERY SCHOOL SECOND YEAR AND HOME ECONOMICS PRESCHOOL SECOND YEAR PUPILS AS MEASURED BY THE WECHSLER PRESCHOOL AND PRIMARY SCALE OF INTELLIGENCE

(Administered Fall, 1969)

WPPSI	NEW NURSERY SCHOOL SECOND YEAR PUPILS	H. E. PRESCHOOL SECOND YEAR PUPILS
Verbal	42.556 (11.706)	52.625 (13.804)
Verbal IQ	90.444 (14.587)	103.000 (17.263)
Performance	43.778 (8.729)	54.875 (6.468)
Performance IQ	91.556 (11.833)	106.750 (8.876)
Total	86.333 (18.432)	107.500 (16.716)
Total IQ	90.222 (13.189)	105.125 (11.922)
		t = -2.4315*

Critical value of t, α = .05, one tailed test, df = 15, t = 1.753.

* Significant

Table 37 compares the mean scores of the New Nursery School pupils with the mean scores of the Similar Sample pupils at the time of kindergarten entrance. This test was administered to the New Nursery School children after a three month summer vacation, rather than at the end of an intensive school experience. This was done for two reasons. First, to allow comparisons to be made with non-Head Start children at the time of kindergarten entrance. Second, allowing such a lapse of time should give a better idea of the long lasting effects on general mental ability, if any, of the New Nursery School program.

The New Nursery School group had higher IQ scores than the Similar Sample. The difference was more evident in the verbal portion of the test than in the performance.

TABLE 38

MEAN WECHSLER PRESCHOOL AND PRIMARY SCALE OF INTELLIGENCE SCORES FOR NEW NURSERY SCHOOL SECOND YEAR PUPILS AND COMPARISON GROUP ONE

(Administered Fall, 1970)

	NEW NURSERY SCHOOL SECOND YEAR PUPILS	COMPARISON GROUP ONE	MEAN DIFFERENCE
Verbal	42.389 (13.469)	33.571 (14.474)	8.818
Verbal IQ	90.538 (16.826)	79.357 (18.169)	11.181
Performance	46.462 (6.972)	44.071 (8.166)	2.391
Performance IQ	95.154 (9.521)	91.929 (11.063)	3.225
Total	88.846 (18.380)	77.643 (20.281)	11.203
Total IQ	91.923 (13.188)	84.071 (14.478)	7.852

PRESCHOOL INVENTORY

The Preschool Inventory was administered in September, 1969, and in May, 1970, to the New Nursery School Second Year pupils. A correlated t-test was applied to test the hypothesis of equality of mean scores for each subtest of the inventory and for the total score. A significant increase was noted for each category of this test.

TABLE 39

COMPARISON OF PRESCHOOL INVENTORY MEAN SCORES FOR NEW NURSERY SCHOOL SECOND YEAR PUPILS

(Administered September, 1969, and May, 1970)

PRESCHOOL INVENTORY	ADMINISTERED SEPTEMBER, 1970	ADMINISTERED MAY, 1970	t
Subtest A Personal-Social Responsiveness	12.077 (4.716)	17.643 (4.684)	9.278*
Subtest B Associative Vocabulary	6.154 (3.236)	9.786 (4.228)	4.853*
Subtest C_1 Concept Activation, Numerical	7.769 (2.891)	10.929 (3.912)	4.255*
Subtest C_2 Concept Activation, Sensory	10.077 (3.796)	13.500 (3.632)	3.766*
Total	36.077 (13.301)	51.857* (14.092)	12.634*

Critical value of t, α = .05, one tailed test, df = 12, t = 1.782.

* Significant

BELLUGI-KLIMA TEST OF GRAMMATICAL COMPREHENSION

The Bellugi-Klima test was administered to the Home Economics Preschool children and to the New Nursery School Second Year pupils in November, 1969. The test was given to both groups again in May of 1970. A t-test was applied to determine whether or not a significant increase in mean total score was registered by the New Nursery School Second Year pupils. A significant increase was noted.

TABLE 40

COMPARISON OF BELLUGI-KLIMA MEAN SCORES FOR NEW NURSERY SCHOOL SECOND YEAR PUPILS

(Administered November, 1969, and May, 1970)

BELLUGI-KLIMA	NOVEMBER, 1969	MAY, 1970	t
Subtest 1	3.071 (1.141)	3.587 (.535)	
Subtest 2	4.571 (2.065)	5.000 (1.569)	
Subtest 3	4.429 (1.223)	4.929 (1.207)	
Subtest 4	3.071 (1.141)	3.500 (.650)	
Subtest 5	5.071 (.997)	5.286 (1.069)	
Subtest 6	3.786 (1.122)	3.786 (.975)	
Subtest 7	3.643 (1.082)	3.429 (.938)	
Subtest 8	2.929 (1.072)	3.857 (.363)	
Subtest 9	3.500 (2.029)	3.714 (.469)	
Subtest 10	2.929 (.730)	3.500 (.855)	
Subtest 11	3.857 (1.460)	4.143 (1.610)	
Subtest 12	5.286 (2.128)	6.357 (1.336)	
Subtest 13	1.786 (1.578)	2.143 (1.994)	
Subtest 14	4.000 (1.961)	3.857 (1.512)	
Subtest 15	1.000 (1.038)	.786 (1.051)	
Subtest 16	2.214 (1.311)	2.000 (1.038)	
Total	54.643 (11.626)	60.000 (11.066)	2.737*

Critical value of t, $\alpha = .05$, one tailed test, df = 13, t = 1.771.

* Significant

The following two tables show mean differences for the New Nursery School Second Year and Home Economics Preschool Second Year pupils for each of the two administrations of the Bellugi-Klima.

TABLE 41

COMPARISON OF THE BELLUGI-KLIMA MEAN SCORES FOR NEW NURSERY SCHOOL SECOND YEAR AND HOME ECONOMICS SECOND YEAR PUPILS

(Administered November, 1969)

BELLUGI-KLIMA	NEW NURSERY SCHOOL SECOND YEAR PUPILS	H. E. PRESCHOOL SECOND YEAR PUPILS	MEAN DIFFERENCE
Subtest 1	3.071 (1.141)	3.900 (.316)	- .829
Subtest 2	4.571 (2.065)	5.300 (1.252)	- .729
Subtest 3	4.429 (1.223)	4.900 (1.101)	- .471
Subtest 4	3.071 (1.141)	3.900 (.568)	- .829
Subtest 5	5.071 (.997)	5.500 (.850)	- .429
Subtest 6	3.786 (1.122)	4.300 (.675)	- .514
Subtest 7	3.643 (1.082)	4.800 (1.033)	-1.157
Subtest 8	2.929 (1.072)	3.600 (.516)	- .671
Subtest 9	3.500 (2.029)	3.900 (.316)	- .400
Subtest 10	2.929 (.730)	3.200 (1.033)	- .271
Subtest 11	3.857 (1.460)	3.900 (.738)	- .043
Subtest 12	5.286 (2.128)	5.700 (1.160)	- .414
Subtest 13	1.786 (1.578)	3.500 (2.068)	-1.714
Subtest 14	4.000 (1.961)	4.300 (1.494)	- .300
Subtest 15	1.000 (1.038)	.900 (.994)	.100
Subtest 16	2.214 (1.311)	3.000 (1.333)	- .786
Total	54.643 (11.626)	64.600 (7.891)	-9.957

TABLE 42

COMPARISON OF BELLUGI-KLIMA MEAN SCORES FOR THE NEW NURSERY SCHOOL SECOND YEAR PUPILS AND HOME ECONOMICS PRESCHOOL SECOND YEAR PUPILS

(Administered May, 1970)

BELLUGI-KLIMA	NEW NURSERY SCHOOL SECOND YEAR PUPILS	H. E. PRESCHOOL SECOND YEAR PUPILS	MEAN DIFFERENCE
Subtest 1	3.587 (.535)	4.000 (0.000)	- .143
Subtest 2	5.000 (1.569)	5.875 (.354)	- .875
Subtest 3	4.929 (1.207)	5.000 (1.604)	- .071
Subtest 4	3.500 (.650)	4.000 (.756)	- .500
Subtest 5	5.286 (1.069)	5.625 (.518)	- .339
Subtest 6	3.786 (.975)	4.375 (.744)	- .589
Subtest 7	3.429 (.938)	4.500 (1.069)	-1.071
Subtest 8	3.857 (.363)	3.875 (.354)	- .018
Subtest 9	3.714 (.469)	3.625 (.744)	.089
Subtest 10	3.500 (.855)	3.125 (1.246)	.375
Subtest 11	4.143 (1.610)	4.250 (1.488)	- .107
Subtest 12	6.357 (1.336)	6.250 (1.165)	.107
Subtest 13	2.143 (1.994)	3.250 (2.121)	-1.107
Subtest 14	3.857 (1.512)	4.500 (.926)	- .643
Subtest 15	.786 (1.051)	1.750 (1.389)	- .964
Subtest 16	2.000 (1.038)	3.875 (.354)	-1.875
Total	60.000 (11.066)	67.875 (8.709)	-7.875

When the mean differences for New Nursery School Second Year and Home Economics Preschool Second Year pupils as recorded from the November, 1969, and the May, 1970, administrations of the Bellugi-Klima test the New Nursery School Second Year pupils were closer to the Home Economics Preschool Second Year pupils on ten of the sixteen subtests and on the total. However, this was as much a function of lack of gain by the advantaged group as of gain by the experimental group.

TASK ACCOMPLISHMENT INVENTORY

Three comparisons were made in the analysis of the data obtained from the Task Accomplishment Inventory. The following table relates mean scores for New Nursery School Second Year pupils. These scores were obtained from the September, 1969, and May, 1970, administrations of the test. A significant increase in the mean score was noted in each category except Rote Counting and Relative Location, Comprehension.

TABLE 43

COMPARISON OF TASK ACCOMPLISHMENT INVENTORY MEAN SCORES FOR NEW NURSERY SCHOOL SECOND YEAR PUPILS

(Administered September, 1969, and May, 1970)

TASK ACCOMPLISHMENT INVENTORIES		ADMINISTERED SEPTEMBER, 1969	ADMINISTERED MAY, 1970	n	t
COLOR	Comprehension	4.929 (3.269)	7.643 (1.985)	14	3.885*
	Production	4.143 (3.800)	6.857 (2.413)	14	2.510*
NUMBER (Counting)	Rote	9.083 (4.660)	9.929 (5.106)	12	1.229
	Rational	8.846 (4.828)	11.714 (4.858)	12	3.028*
SHAPE	Comprehension	2.538 (1.198)	4.286 (.994)	13	3.877*
	Production	2.692 (1.702)	3.571 (1.555)	13	1.877*
RELATIVE SIZE	Comprehension	11.357 (3.754)	16.429 (2.875)	13	4.384*
RELATIVE LOCATION	Comprehension	9.571 (1.785)	9.846 (2.375)	13	.352
	Production	6.429 (3.390)	8.846 (3.078)	13	3.395*

Critical values of t, α = .05, one tailed test, df = 11, t = 1.796; df = 12, t = 1.782; df = 13, t = 1.771.

The following tables report the mean scores for the New Nursery School pupils and the Home Economics Preschool pupils for the September, 1969, and May, 1970, administrations of the Task Accomplishment Inventory tests. There was a reduction in mean differences for five of the inventories.

TABLE 44

COMPARISON OF TASK ACCOMPLISHMENT INVENTORY
MEAN SCORES OF NEW NURSERY SCHOOL SECOND YEAR
AND HOME ECONOMICS PRESCHOOL SECOND YEAR PUPILS

(Administered September, 1969)

TASK ACCOMPLISHMENT INVENTORIES		NEW NURSERY SCHOOL SECOND YEAR PUPILS	H. E. PRESCHOOL SECOND YEAR PUPILS	MEAN DIFFERENCE
COLOR	Comprehension	4.929 (3.269)	7.800 (2.394)	-2.871
	Production	4.143 (3.800)	7.800 (2.821)	-3.657
NUMBER (Counting)	Rote	9.083 (4.660)	18.200 (12.435)	-9.117
	Rational	8.846 (4.828)	17.000 (9.877)	-8.154
SHAPE	Comprehension	2.538 (1.198)	3.500 (.850)	- .962
	Production	2.692 (1.702)	1.800 (1.135)	.892
RELATIVE SIZE	Comprehension	11.357 (3.754)	11.700 (2.751)	- .343
RELATIVE LOCATION	Comprehension	9.571 (1.785)	10.600 (.966)	-1.029
	Production	6.429 (3.390)	9.333 (1.658)	-2.904

TABLE 45

COMPARISON OF TASK ACCOMPLISHMENT INVENTORY MEAN SCORES OF NEW NURSERY SCHOOL SECOND YEAR AND HOME ECONOMICS PRESCHOOL SECOND YEAR PUPILS

(Administered May, 1970)

TASK ACCOMPLISHMENT INVENTORIES		NEW NURSERY SCHOOL SECOND YEAR PUPILS	H. E. PRESCHOOL SECOND YEAR PUPILS	MEAN DIFFERENCE
COLOR	Comprehension	7.643 (1.985)	9.000 (0.000)	- 1.357
	Production	6.857 (2.413)	8.661 (.500)	- 1.810
NUMBER (Counting)	Rote	9.929 (5.106)	33.111 (30.473)	-23.182
	Rational	11.714 (4.858)	23.667 (13.191)	-11.953
SHAPE	Comprehension	4.286 (.994)	4.333 (1.118)	- .047
	Production	3.571 (1.555)	4.000 (1.225)	- .429
RELATIVE SIZE	Comprehension	16.429 (2.875)	15.900 (3.281)	.529
RELATIVE LOCATION	Comprehension	9.846 (2.375)	11.400 (.516)	- 1.554
	Production	8.846 (3.078)	11.000 (.707)	- 2.154

CATEGORIES TEST

A t-test was used to compare the mean number of "expected" responses, "other" responses, and non-responses, for the New Nursery School Second Year pupils and the Home Economics Preschool Second Year pupils. The mean "expected" score for the Home Economics Preschool children was significantly greater than that of the New Nursery School children and the mean "other" score for the Home Economics Preschool was significantly less than that of the New Nursery School pupils. It should be noted that there was a mean "no response" for the New Nursery School pupils of .071. This indicates the willingness of the New Nursery School children to attempt to answer. This is a great gain for many of these youngsters.

TABLE 46

COMPARISON OF THE CATEGORIES TEST MEAN SCORES OF THE NEW NURSERY SCHOOL SECOND YEAR PUPILS AND HOME ECONOMICS PRESCHOOL SECOND YEAR PUPILS

(Administered March and April, 1970)

CATEGORIES TEST	NEW NURSERY SCHOOL SECOND YEAR PUPILS	H. E. PRESCHOOL SECOND YEAR PUPILS	T-TEST	MEAN DIFFERENCE
Expected	4.571 (2.738)	7.222 (1.302)	-2.699*	-2.651
Other	4.357 (2.818)	1.333 (.886)	3.104*	3.024
No Response	.071 (.267)	.333 (.707)	-1.265	- .262

Critical value of t, α = .05, one tailed test, df = 21, t = 1.721.

* Significant

CINCINNATI AUTONOMY TEST BATTERY (Innovative Behavior)

TABLE 47

COMPARISON OF MEAN SCORES ON THE INNOVATIVE BEHAVIOR SECTION OF THE CINCINNATI TEST FOR THE NEW NURSERY SCHOOL SECOND YEAR AND HOME ECONOMICS PRESCHOOL SECOND YEAR PUPILS

(Administered March, 1970)

CINCINNATI TEST	NEW NURSERY SCHOOL SECOND YEAR PUPILS	H. E. PRESCHOOL SECOND YEAR PUPILS	MEAN DIFFERENCE
Innovative Behavior	7.857 (5.304)	11.700 (4.498)	-3.843
t-test	t = -1.860*		

Critical value of t, α = .05, one tailed test, df = 22, t = 1.717.

* Significant

Even though the Home Economics Preschool pupils scored significantly higher on this measure, New Nursery School Second Year pupils were scoring slightly higher than the second year group (four and five year olds) in 1968-69. Their mean score was 7.2, as compared with this year's 7.857. The first year group at that time scored 3.1.

SELF-CONCEPT INTERVIEW

A significant difference in favor of the Home Economics Preschool Second Year pupils was found on the Self-Concept Interview. Previous studies of this instrument's reliability reported it to be quite low (-.10 from March to May[1]). Correlations with other self-concept measures and with measures of IQ reveal low and sometimes negative correlations. Because of this, little importance can be attached to the results obtained on this instrument as reported in Table 48 below, or Table 24 (page 49) which reports no significant difference between the first year New Nursery School and Home Economics Preschool pupils.

TABLE 48

COMPARISON OF MEAN SCORES ON THE SELF-CONCEPT INTERVIEW FOR THE NEW NURSERY SCHOOL SECOND YEAR PUPILS AND THE HOME ECONOMICS PRESCHOOL SECOND YEAR PUPILS

(Administered April, 1970)

	NEW NURSERY SCHOOL SECOND YEAR PUPILS	H. E. PRESCHOOL SECOND YEAR PUPILS	MEAN DIFFERENCE
Self-Concept Interview	19.714 (6.844)	30.700 (5.229)	-10.986
t-test	t = -.3.1432*		

Critical value of t, α = .05, two tailed test, df = 22, t = 2.074.

* Significant

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[1] The New Nursery School Final Report to the Office of Economic Opportunity, October 1, 1968 to September 30, 1969, (Greeley, Colorado, University of Northern Colorado), p. 55.

CORRELATIONS

An examination of the intercorrelations for the eighty-eight variables which were available with respect to the New Nursery School Second Year pupils was conducted. As in the analysis of the New Nursery School First Year correlations, to report all 3,960 intercorrelations would be confusing and extremely difficult to interpret. Only those correlations which were deemed important to the investigation are reported.

WECHSLER PRESCHOOL AND PRIMARY SCALE OF INTELLIGENCE, SELF-CONCEPT INTERVIEW, AND BEHAVIOR RATING FORM

The intercorrelations between the WPPSI, Self-Concept Interview, and the Self-Concept Subtest of the Behavior Rating Form were obtained. A positive correlation between the Self-Concept Interview and the Behavior Rating Form (Self-Concept) would be anticipated. However, a correlation coefficient of -.171 was noted between these two tests. Also, one might expect a significant, positive relationship between self-concept and IQ. There were no significant correlations noted between either measure of self-concept and IQ as measured by the WPPSI. However, due to the consistent finding of negative relationships between the Self-Concept Interview scores and items such as Verbal IQ and Behavior Rating Form (Self-Concept), it is believed by the investigators that the Self-Concept Interview and the Behavior Rating Form are measuring different entities. Evidence obtained in 1969-70 corroborated results obtained from analysis of the previous year's data.[1]

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[1] *Ibid.*

TABLE 49

INTERCORRELATIONS OF WECHSLER PRESCHOOL AND PRIMARY SCORES, SELF-CONCEPT INTERVIEW SCORES AND BEHAVIOR RATING FORM SCORES FOR THE NEW NURSERY SCHOOL SECOND YEAR PUPILS

		VERBAL IQ	PERFORMANCE IQ	TOTAL IQ	SELF-CONCEPT INTERVIEW	BEHAVIOR RATING FORM
WPPSI	Verbal IQ	1.000	.617*	.930*	-.194	.390
	Performance IQ		1.000	.857*	.328	.319
	Total IQ			1.000	.037	.401
SELF-CONCEPT INTERVIEW					1.000	- .171
BEHAVIOR RATING FORM						1.000

Critical value of r, α = .10, two tailed test, df = 12, r = .458.

* Significant

WECHSLER PRESCHOOL AND PRIMARY SCALE OF INTELLIGENCE

The following table lists those variables that correlate significantly with IQ as measured by the WPPSI. It is interesting to note that although very few subtests of the Bellugi-Klima Test of Grammatical Comprehension were found to have a significant relationship to IQ, the total score was highly correlated to IQ for both administrations of the test.

TABLE 50

VARIABLES THAT CORRELATE SIGNIFICANTLY WITH THE WECHSLER PRESCHOOL AND PRIMARY SCALE OF INTELLIGENCE TOTAL IQ

VARIABLES		WPPSI TOTAL IQ	
		r	df
Preschool Inventory September, 1969	Subtest A	.720	7
	Subtest B	.652	7
	Subtest C_2	.837	7
	Total	.827	7
Preschool Inventory May, 1970	Subtest A	.912	7
	Subtest C_1	.799	7
	Total	.875	7
"C" Test	Expected	.590	7
Task Accomplishment September, 1969	Color (Comprehension)	.731	7
	Color (Production)	.664	7
	Shape (Production	.720	7
	Relative Location (Production)	.711	7
Task Accomplishment May, 1970	Color (Comprehension)	.722	7
	Color (Production)	.741	7
	Relative Location (Production)	.585	7
Bellugi-Klima November, 1969	Subtest 6	.720	7
	Subtest 11	.598	7
	Subtest 13	.582	7
	Total	.721	7
Bellugi-Klima May, 1970	Subtest 8	.632	7
	Subtest 9	.632	7
	Total	.655	7
WPPSI	Verbal	.933	7
	Verbal IQ	.934	7
	Performance	.860	7
	Performance IQ	.857	7
Typing Booth	Average Minutes	.684	7
	Highest Phase Reached	.641	7

Critical value of $r, \alpha = .10$, two tailed test, df = 7, r = .582.

PRESCHOOL INVENTORY

The Preschool Inventory was given in September, 1969, and again in May of 1970. The following tables indicate a degree of stability for this test when comparing those variables that were significantly related to the test in September, 1969, with those that were significantly related to the test in May, 1970.

TABLE 51

VARIABLES THAT CORRELATE SIGNIFICANTLY WITH THE TOTAL SCORE OF THE PRESCHOOL INVENTORY
(Administered September, 1969)

VARIABLES		PRESCHOOL INVENTORY TOTAL	
		r	df
Preschool Inventory September, 1969	Subtest A	.930	11
	Subtest B	.944	11
	Subtest C_1	.839	11
	Subtest C_2	.904	11
Preschool Inventory May, 1970	Subtest A	.874	11
	Subtest B	.802	11
	Subtest C_1	.782	11
	Subtest C_2	.626	11
	Total	.932	11
"C" Test	Expected	.506	11
	Other	-.488	11
Task Accomplishment September, 1969	Color (Comprehension)	.664	11
	Color (Production)	.650	11
	Number (Rote Counting)	.569	10
	Relative Size (Comprehension)	.693	11
	Relative Location (Comp.)	.590	11
	Relative Location (Production)	.795	11
Task Accomplishment May, 1970	Color (Production)	.628	11
	Number (Rote Counting)	.511	11
	Relative Size (Comprehension)	.661	11
	Relative Location (Comp.)	.770	10
	Relative Location (Production)	.785	10
Bellugi-Klima November, 1969	Subtest 2	.556	11
	Subtest 6	.544	11
	Subtest 11	.548	11
	Subtest 12	.580	11
	Subtest 13	.772	11
	Subtest 14	.503	11
	Subtest 16	.760	11
	Total	.899	11
Bellugi-Klima May, 1970	Subtest 2	.531	11
	Subtest 3	.687	11
	Subtest 4	.565	11
	Subtest 5	.670	11
	Subtest 10	.575	11
	Subtest 11	.652	11
	Subtest 13	.538	11
	Subtest 16	.626	11
	Total	.780	11
WPPSI	Verbal	.907	7
	Verbal IQ	.908	7
	Total	.825	7
	Total IQ	.827	7
Typing Booth	Average Minutes	.714	11
	Phase Reached	.613	11

Critical value of r, α = .10, two tailed test, df = 7, r = .582; df = 10, r = .497; df = 11, r = .476.

TABLE 52

VARIABLES THAT CORRELATE SIGNIFICANTLY WITH THE PRESCHOOL INVENTORY TOTAL SCORE

(Administered May, 1970)

		PRESCHOOL INVENTORY TOTAL	
VARIABLES		r	df
Preschool Inventory September, 1969	Subtest A	.902	11
	Subtest B	.865	11
	Subtest C_1	.675	11
	Subtest C_2	.892	11
	Total	.932	11
Preschool Inventory May, 1970	Subtest A	.924	12
	Subtest B	.830	12
	Subtest C_1	.834	12
	Subtest C_2	.824	12
"C" Test	Expected	.843	12
	Other	-.469	12
Task Accomplishment September, 1969	Color (Comprehension)	.801	12
	Color (Production)	.693	12
	Number (Rote Counting)	.695	10
	Number (Rational Counting)	.573	11
	Shape (Production)	.531	11
	Relative Size (Comprehension)	.804	12
	Relative Location (Comp.)	.667	12
	Relative Location (Production)	.861	12
Task Accomplishment May, 1970	Number (Rote Counting)	.630	12
	Number (Rational Counting)	.472	12
	Relative Size (Comprehension)	.507	12
	Relative Location (Comp.)	.698	11
	Relative location (Production)	.816	11
Bellugi-Klima November, 1969	Subtest 2	.693	12
	Subtest 3	.584	12
	Subtest 5	.559	12
	Subtest 6	.523	12
	Subtest 11	.657	12
	Subtest 12	.556	12
	Subtest 13	.493	12
	Subtest 14	.668	12
	Subtest 16	.739	12
	Total	.848	12

Continued, Page 79.

TABLE 52 (Continued)

VARIABLES		r	df
Bellugi-Klima May, 1970	Subtest 1	.467	12
	Subtest 2	.696	12
	Subtest 5	.718	12
	Subtest 7	.581	12
	Subtest 9	.669	12
	Subtest 10	.511	12
	Subtest 11	.723	12
	Subtest 13	.485	12
	Subtest 14	.595	12
	Subtest 16	.626	12
	Total	.805	12
WPPSI	Verbal	.951	7
	Verbal IQ	.953	7
	Total	.873	7
	Total IQ	.875	7
Typing Booth	Average Minutes	.808	12
	Phase Reached	.616	12

Critical values of r, α = .10, two tailed test, df = 7, r = .582; df = 10, r = 497; df = 11, r = .476; df = 12, r = .458.

BELLUGI-KLIMA TEST OF GRAMMATICAL COMPREHENSION

TABLE 53

VARIABLES THAT CORRELATE SIGNIFICANTLY WITH THE BELLUGI-KLIMA TOTAL SCORE

(Administered November, 1969)

		BELLUGI-KLIMA TOTAL SCORE	
VARIABLES		r	df
Preschool Inventory September, 1969	Subtest A	.827	11
	Subtest B	.886	11
	Subtest C_1	.788	11
	Subtest C_2	.767	11
	Total	.899	11
Preschool Inventory May, 1970	Subtest A	.772	12
	Subtest B	.685	12
	Subtest C_1	.833	12
	Subtest C_2	.600	12
	Total	.848	12
"C" Test	Expected	.594	12
	Other	-.578	12
Task Accomplishment September, 1969	Color (Comprehension)	.716	12
	Color (Production)	.564	12
	Number (Rote Counting)	.634	10
	Number (Rational Counting)	.610	11
	Relative Size (Comprehension)	.879	12
	Relative Location (Comp.)	.804	12
	Relative Location (Production)	.761	12
Task Accomplishment May, 1970	Number (Rote Counting)	.690	12
	Number (Rational Counting)	.546	12
	Relative Location (Comp.)	.621	11
	Relative Location (Production)	.797	11
Bellugi-Klima May, 1970	Subtest 2	.742	12
	Subtest 5	.795	12
	Subtest 6	.502	12
	Subtest 7	.622	12
	Subtest 9	.714	12
	Subtest 10	.468	12
	Subtest 11	.632	12
	Subtest 13	.473	12
	Subtest 14	.636	12
	Subtest 16	.497	12
	Total	.793	12
WPPSI	Verbal	.852	7
	Verbal IQ	.851	7
	Total	.718	7
	Total IQ	.721	7
Typing Booth	Average Minutes	.592	12

Critical values of r, $\alpha = .10$, two tailed test, df = 7, r = .582; df = 11, r = .476; df = 12, r = .458.

TABLE 54

VARIABLES THAT CORRELATE SIGNIFICANTLY WITH BELLUGI-KLIMA TOTAL SCORES

(Administered May, 1970)

VARIABLES		BELLUGI-KLIMA TOTAL SCORE	
		r	df
Preschool Inventory September, 1969	Subtest A	.604	11
	Subtest B	.835	11
	Subtest C_1	.755	11
	Subtest C_2	.697	11
	Total	.780	11
Preschool Inventory May, 1970	Subtest A	.736	12
	Subtest B	.577	12
	Subtest C_1	.906	12
	Subtest C_2	.528	12
	Total	.805	12
"C" Test	Expected	.630	12
	Other	-.641	12
Task Accomplishment September, 1969	Color (Comprehension)	.629	12
	Color (Production)	.565	12
	Number (Rote Counting)	.555	10
	Number (Rational Counting)	.486	11
	Relative Size (Comprehension)	.872	12
	Relative Location (Comp.)	.794	12
	Relative Location (Production)	.802	12
Task Accomplishment May, 1970	Number (Rote Counting)	.592	12
	Relative Location (Comp.)	.775	11
	Relative Location (Production)	.813	11
Bellugi-Klima November, 1969	Subtest 2	.663	12
	Subtest 5	.592	12
	Subtest 6	.675	12
	Subtest 11	.733	12
	Subtest 12	.689	12
	Subtest 13	.480	12
	Subtest 14	.603	12
	Subtest 16	.615	12
	Total	.793	12
WPPSI	Verbal	.622	7
	Verbal IQ	.623	7
	Total	.648	7
	Total IQ	.655	7

CINCINNATI AUTONOMY TEST BATTERY (Innovative Behavior)

TABLE 55

VARIABLES THAT CORRELATE SIGNIFICANTLY WITH THE INNOVATIVE BEHAVIOR SECTION OF THE CINCINNATI AUTONOMY TEST BATTERY

VARIABLES		INNOVATIVE BEHAVIOR	
		r	df
Task Accomplishment September, 1969	Number (Rational Counting)	.527	11
	Relative Size (Comprehension)	.483	12
	Relative Location (Comp.)	.531	12
	Relative Location (Production)	.528	12
Task Accomplishment May, 1970	Relative Location (Comprehension)	.525	11
Bellugi-Klima November, 1969	Subtest 5	.509	12
	Subtest 7	.495	12
	Subtest 15	.509	12
WPPSI	Performance	-.589	7
	Performance IQ	-.595	7

Critical values of r, $\alpha = .10$, two tailed test, df = 7, r = .582; df = 11, r = .476; df = 12, r = .458.

SELF-CONCEPT (Behavior Rating Form, Self-Concept Interview)

Throughout this analysis, the Self-Concept Interview was under careful scrutiny. A very weak relationship to the other variables involved in this analysis is indicated by the table depicting those variables that correlate significantly with the Self-Concept Interview.

TABLE 56

VARIABLES THAT CORRELATE SIGNIFICANTLY WITH THE SELF-CONCEPT INTERVIEW

VARIABLES		SELF-CONCEPT INTERVIEW	
		r	df
Bellugi-Klima November, 1969	Subtest 7	-.524	12
Bellugi-Klima May, 1970	Subtest 15	.504	12
Attendance	Days Present	.483	12

Critical value of r, α = .10, two tailed test, df = 12, r = .458.

TABLE 57

VARIABLES THAT CORRELATE SIGNIFICANTLY WITH THE TEACHER BEHAVIOR RATING SELF-CONCEPT FOR THE NEW NURSERY SCHOOL SECOND YEAR PUPILS

VARIABLES		TEACHER BEHAVIOR RATING SELF-CONCEPT	
		r	df
Cincinnati	Innovative Behavior	-.472	12
Task Accomplishment September, 1969	Color (Comprehension)	.606	12
	Number (Rational Counting)	.559	11
	Shape (Comprehension)	.487	11
Task Accomplishment May, 1970	Color (Comprehension)	.576	12
	Number (Rote Counting)	.555	12
	Shape (Comprehension)	.461	12
	Shape (Production)	.590	12
Bellugi-Klima November, 1969	Subtest 11	.493	12
Bellugi-Klima May, 1970	Subtest 2	.490	12
	Subtest 9	.511	12
Typing Booth	Times Asked	.467	12
	Total Minutes	.490	12
	Phase Reached	.617	12

Critical values of r, α = .10, two tailed test,
df = 11, r = .476; df = 12, r = .458.

TYPING BOOTH

TABLE 58

VARIABLES THAT CORRELATE SIGNIFICANTLY WITH THE HIGHEST PHASE REACHED IN THE TYPING BOOTH

VARIABLES		HIGHEST PHASE REACHED	
		r	df
Preschool Inventory September, 1969	Subtest A	.743	11
	Subtest C_2	.634	11
	Total	.613	11
Preschool Inventory May, 1970	Subtest A	.549	12
	Subtest C_1	.605	12
	Subtest C_2	.580	12
	Total	.616	12
Task Accomplishment September, 1969	Color (Comprehension)	.763	12
	Color (Production)	.699	12
	Shape (Production)	.613	11
	Relative Location (Production)	.543	12
Task Accomplishment May, 1970	Color (Comprehension)	.585	12
	Number (Rote Counting)	.600	12
	Shape (Comprehension)	.578	12
	Shape (Production)	.699	12
	Relative Location (Production)	.541	11
Bellugi-Klima November, 1969	Subtest 8	.500	12
Bellugi-Klima May, 1970	Subtest 11	.486	12
WPPSI	Performance	.593	7
	Performance IQ	.602	7
	Total	.617	7
	Total IQ	.614	7
Teacher Behavior Rating	Self-Concept	.617	12
Typing Booth	Days Typed	.523	12
	Total Minutes	.766	12
	Average Minutes	.751	12

Critical values of r, α = .10, two tailed test, df = 7, r = .582; df = 11, r = .476; df = 12, r = .458.

TABLE 59

VARIABLES THAT CORRELATE SIGNIFICANTLY WITH THE NUMBER OF DAYS THE CHILD TYPED

VARIABLES		DAYS TYPED	
		r	df
Task Accomplishment September, 1969	Relative Location (Comprehension)	-.472	12
Task Accomplishment May 5, 1970	Color (Comprehension)	.504	12
Bellugi-Klima November, 1969	Subtest 7	-.505	12
	Subtest 9	.705	12
	Subtest 10	.459	12
	Subtest 12	-.538	12
Typing Booth	Times Asked	.922	12
	Total Minutes	.863	12
	Phase Reached	.523	12

Critical value of r, $\alpha = .10$, two tailed test, df = 12, r = .458.

TABLE 60

VARIABLES THAT CORRELATE SIGNIFICANTLY WITH TOTAL MINUTES SPENT IN THE TYPING BOOTH

VARIABLES		TOTAL MINUTES	
		r	df
Task Accomplishment May, 1970	Color (Comprehension)	.534	12
	Shape (Production)	.547	12
Bellugi-Klima November, 1969	Subtest 9	.460	12
Teacher Behavior Rating	Self-Concept	.490	12
Typing Booth	Times Asked	.726	12
	Days Typed	.863	12
	Average Minutes	.488	12
	Phase Reached	.766	12

Critical value of r, $\alpha = .10$, two tailed test, df = 12, r = .458.

TABLE 61

VARIABLES THAT CORRELATE SIGNIFICANTLY WITH AVERAGE MINUTES TYPED

VARIABLES		AVERAGE MINUTES TYPED	
		r	df
Preschool Inventory September, 1969	Subtest A	.758	11
	Subtest B	.533	11
	Subtest C	.823	11
	Total	.714	11
Preschool Inventory May, 1970	Subtest A	.759	12
	Subtest B	.766	12
	Subtest C_1	.598	12
	Subtest C_2	.619	12
	Total	.808	12
"C" Test	Expected	.477	12
Task Accomplishment September, 1969	Color (Comprehension)	.729	12
	Color (Production)	.734	12
	Number (Rational Counting)	.511	11
	Number (Rote Counting)	.553	11
	Shape Production	.544	11
	Relative Location (Production)	.717	12
Task Accomplishment May, 1970	Number (Rational Counting)	.493	12
	Relative Size (Comprehension)	.595	12
	Relative Location (Comprehension)	.543	11
	Relative Location (Production)	.620	11
Bellugi-Klima November, 1969	Subtest 2	.479	12
	Subtest 3	.552	12
	Subtest 8	.546	12
	Subtest 11	.524	12
	Subtest 16	.652	12
	Total	.592	12
Bellugi-Klima May, 1970	Subtest 8	.496	12
	Subtest 9	.576	12
Typing Booth	Total Minutes	.488	12
	Phase Reached	.751	12

Critical values of r, α = .10, two tailed test, df = 11, r = .476; df = 12, r = .458.

SECTION EIGHT

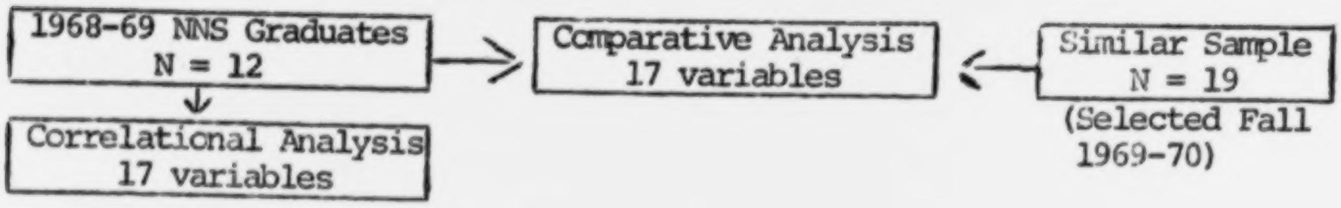
1964 - 1969 LONGITUDINAL ANALYSIS

The performance of the available New Nursery School graduates and a comparison group of cultural and sociological background similar to the experimental group (1964-65 to 1968-69) is analyzed in this section. This comparison group will be referred to in the tables as Similar Sample. Chart 3 on the next page provides a diagrammatic summary of these analyses.

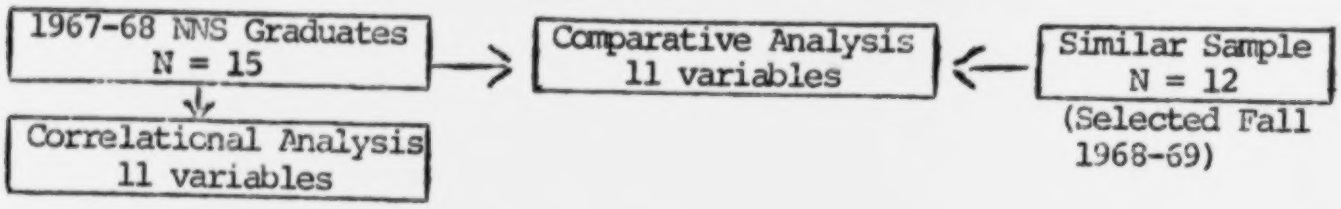
CHART 3

ANALYSIS OF FOLLOW-UP DATA ON NEW NURSERY SCHOOL GRADUATES AND CORRESPONDING COMPARISON GROUPS

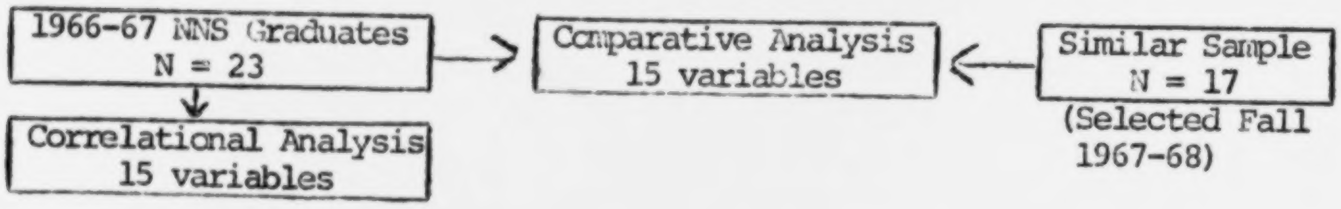
1968-69 GRADUATES AND COMPARISON
(Children were in kindergarten)


1968-69 NNS Graduates
N = 12
Comparative Analysis
17 variables
Similar Sample
N = 19
(Selected Fall
1969-70)
Correlational Analysis
17 variables

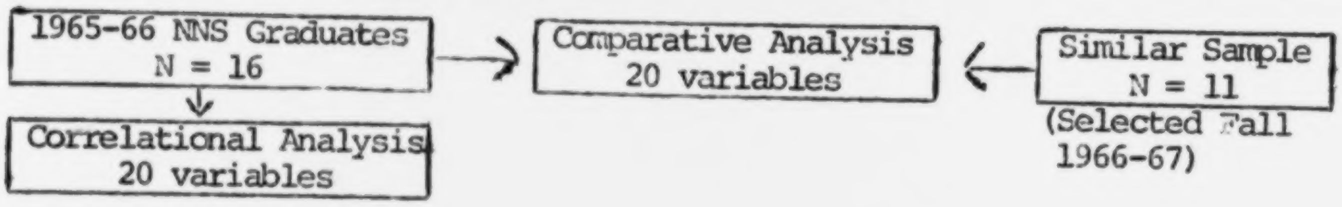
1967-68 GRADUATES AND COMPARISON
(Children were in First Grade)


1967-68 NNS Graduates
N = 15
Comparative Analysis
11 variables
Similar Sample
N = 12
(Selected Fall
1968-69)
Correlational Analysis
11 variables

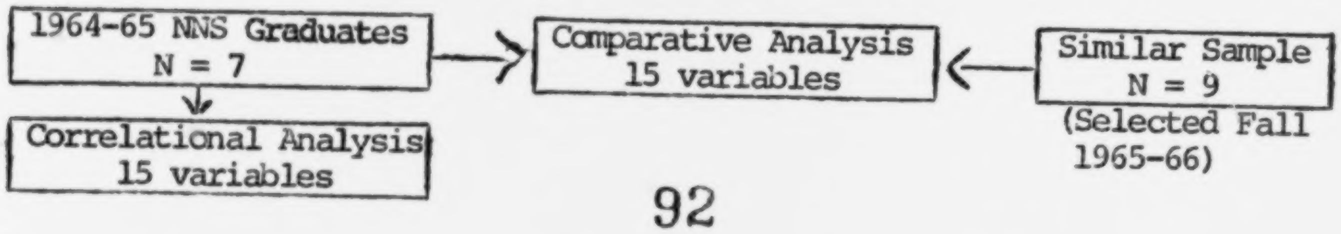
1966-67 GRADUATES AND COMPARISON
(Children were in Second Grade)


1966-67 NNS Graduates
N = 23
Comparative Analysis
15 variables
Similar Sample
N = 17
(Selected Fall
1967-68)
Correlational Analysis
15 variables

1965-66 GRADUATES AND COMPARISON
(Children were in Third Grade)


1965-66 NNS Graduates
N = 16
Comparative Analysis
20 variables
Similar Sample
N = 11
(Selected Fall
1966-67)
Correlational Analysis
20 variables

1964-65 GRADUATES AND COMPARISON
(Children were in Fourth Grade)


1964-65 NNS Graduates
N = 7
Comparative Analysis
15 variables
Similar Sample
N = 9
(Selected Fall
1965-66)
Correlational Analysis
15 variables

Reported in this study are follow-up data on the five groups of children who attended the New Nursery School and are now attending schools in and around Greeley. The first group graduated in 1965 and the last group in 1969. Not all children attended two years. Records were kept on those who attended one year or more, whether that year was when the child was three or when the child was four, even though it was unlikely that the three year old experience alone would have much effect. As each group entered kindergarten, a comparison group of cultural and sociological background similar to the New Nursery School group was selected. All available data from the schools was collected each year on each pupil in the experimental and comparison group. Each year each child has been given the Self-Concept Interview, and his teacher has been asked to fill out the Behavior Rating Form and check the child's standing in the class on selected school related variables, reading, arithmetic, independence, attention span, appropriate behavior, and total success. In January, 1970, children in the experimental and control groups who were then in third grade were given the Stanford-Binet and the Goodenough-Harris Drawing Test (Draw-A-Man) and comparisons made on those as well.

There are certain facts concerning the implementation of the school's program which may have relevance for interpretation of the data which follow.

For the first two years of the school's operation, its work was focused entirely on children and their families. The staff was small and procedures closely controlled. In 1966, the school became a part of nationwide efforts in early childhood research, demonstration, and training. The staff was more than tripled. The school was divided into two sections, with one section placing emphasis on perceptual and motor training. In both 1966-67 and 67-68, twenty-five trainees per quarter received instruction at the school through observation and participation. Maintaining consistency of program focus and methodology was difficult.

Concurrent with these efforts was the implementation of a Head Start program in Greeley which provided a nursery school experience to those children who would have been selected for a comparison group. To find children without Head Start type experience, children who were above the guidelines used for admission to the New Nursery School or Head Start were sometimes selected for the comparison group.

To compound the difficulty with evaluation efforts, funding difficulties prevented obtaining key post-test data on the 1966-67 graduates and a comparison group and pre-test data on the 1967-68 entrants, and other data as well, so that attempts to assess how a child is performing now compared with how he was performing at the time of entrance to nursery school or kindergarten are almost impossible. Also, because of funding difficulties, not all children who attended as three year olds in the year 1966-67 were able to be enrolled in 1967-68. They were encouraged to attend the year round Head Start in Greeley, but have been retained in the New Nursery School records because they did attend one year.

With these facts at hand, certain patterns of performance which emerge in the following study may have some meaning.

ANALYSIS OF PERFORMANCES OF 1968-69 NEW NURSERY SCHOOL GRADUATES AND A SIMILAR SAMPLE COMPARISON GROUP

At the time of testing, the 1968-69 graduates and their comparison group were enrolled in kindergarten. Twelve New Nursery School graduates and nineteen of the Similar Sample group were available for testing.

COMPARISONS

AGE

TABLE 62

MEAN AGE DATA FOR THE 1968-69 NEW NURSERY SCHOOL GRADUATES AND A SIMILAR SAMPLE

	NEW NURSERY SCHOOL 1968-69 GRADUATES	SIMILAR SAMPLE
Age in Months	65.7500 (4.4339)	66.6111 (5.1353)
Mean Difference		-.8611

ATTENDANCE

Because of transportation problems, one New Nursery School child did not attend kindergarten until February.

TABLE 63

MEAN ATTENDANCE DATA FOR THE 1968-69 NEW NURSERY SCHOOL GRADUATES AND A SIMILAR SAMPLE

	NEW NURSERY SCHOOL 1968-69 GRADUATES	SIMILAR SAMPLE
Days Present	154.417 (31.713)	146.313 (21.165)
Days Absent	15.000 (12.023)	24.563 (11.425)
Totals	169.417 (29.546)	169.625 (20.116)

CLASS STANDING VARIABLES

The analysis of the class standing variables has been changed considerably from the 1968-69 final report. In an attempt to more accurately describe the difference which may exist between the New Nursery School groups and the similar samples, a special correlation coefficient has been calculated. Children who were graduates of the New Nursery School were coded (1) and those children in the similar sample coded (0). A correlation coefficient was evaluated between the following two variables:

EXAMPLE:

$$\begin{array}{l c c l}
 & \underline{\text{CLASS STANDING}} & \underline{\text{BINARY CODED GROUP MEMBERSHIP}} & \\
 & a_1 & 1 & \\
 & a_2 & 1 & \\
 & a_3 & 1 & \text{New Nursery School} \\
 & \cdot & \cdot & \\
 & \cdot & \cdot & \\
 & \cdot & \cdot & \\
\text{Class Standing Variable} & a_n & 1 & \\
 & b_1 & 0 & \\
 & b_2 & 0 & \\
 & b_3 & 0 & \text{Similar Sample} \\
 & \cdot & \cdot & \\
 & \cdot & \cdot & \\
 & \cdot & \cdot & \\
 & b_n & 0 &
\end{array}$$

A positive r indicates that larger class standing scores were paired with ones (New Nursery School Graduates), while smaller class standing scores were paired with zeros (Similar Sample). Negative correlations indicate the opposite relationship. For example, a correlation coefficient of .650 would indicate a higher standing by New Nursery School Graduates than by the Similar Sample while an r of -.320 indicates the opposite.

WECHSLER PRESCHOOL AND PRIMARY SCALE OF INTELLIGENCE

The experimental group scored consistently higher than the Similar Sample on all measures of the WPPSI. The experimental group's mean scores include four children who were unable to take the test in fall, 1968. Their scores lower the mean.

TABLE 64

COMPARISON OF MEAN SCORES ON THE WECHSLER PRESCHOOL PRIMARY SCALE OF INTELLIGENCE 1968-69 NEW NURSERY SCHOOL GRADUATES AND A SIMILAR SAMPLE

(Administered Fall, 1969)

WPPSI	NEW NURSERY SCHOOL 1968-69 GRADUATES	SIMILAR SAMPLE	MEAN DIFFERENCE
Verbal	40.417 (5.299)	35.222 (12.115)	5.195
Verbal IQ	88.000 (6.661)	81.389 (15.155)	6.611
Performance	45.250 (6.594)	39.556 (9.624)	5.694
Performance IQ	93.500 (8.878)	85.778 (13.086)	7.722
Total	85.667 (9.985)	74.833 (17.843)	10.834
Total IQ	89.583 (7.103)	82.000 (12.880)	7.583

TABLE 65

ANALYSIS OF THE 1968-69 NEW NURSERY SCHOOL AND SIMILAR SAMPLE ON THE CLASS STANDING VARIABLES

CLASS STANDING VARIABLES	NEW NURSERY SCHOOL 1968-69 GRADUATES	SIMILAR SAMPLE	r*
Reading	2.333 (.778)	2.188 (1.276)	.23
Arithmetic	2.500 (.798)	2.125 (1.258)	.30
Independence	2.500 (.798)	2.500 (1.549)	.12
Attention	2.583 (.900)	2.188 (1.471)	.29
Behavior	2.750 (.866)	2.500 (1.414)	.25
Total	2.667 (.888)	2.125 (1.258)	.35

* Positive r's indicate superior performance by New Nursery School graduates while negative r's indicate superior performance by the Similar Sample group.

SELF-CONCEPT INTERVIEW

TABLE 66

COMPARISON OF MEAN SCORES ON THE SELF-CONCEPT INTERVIEW FOR THE 1968-69 NEW NURSERY SCHOOL GRADUATES AND A SIMILAR SAMPLE

	NEW NURSERY SCHOOL 1968-69 GRADUATES	SIMILAR SAMPLE
Self-Concept Interview	29.167 (3.738)	27.647 (5.645)
t-test	t = 1.4517	

Critical value of t, α = .05, two tailed test, df = 29, t = 1.699.

BEHAVIOR RATING FORM (Self-Concept)

TABLE 67

COMPARISON OF MEAN SCORES ON THE BEHAVIOR RATING FORM (SELF-CONCEPT) FOR THE 1968-69 NEW NURSERY SCHOOL GRADUATES AND A SIMILAR SAMPLE

	NEW NURSERY SCHOOL 1968-69 GRADUATES	SIMILAR SAMPLE
Behavior Rating Form	36.000 (4.134)	32.750 (5.814)
t-test	t = 2.0785*	

Critical value of t, $\alpha = .05$, one tailed test, df = 29, t = 1.699.

* Significant

CORRELATIONS

BEHAVIOR RATING FORM, SELF-CONCEPT INTERVIEW, WECHSLER PRESCHOOL AND PRIMARY SCALE OF INTELLIGENCE

As previously mentioned, the Self-Concept Interview has been the object of particular scrutiny throughout this report and the 1968-69 final report. The low correlation between results on the interview and IQ scores found elsewhere are also evident here.

TABLE 68

INTERCORRELATIONS FOR 1968-69 NEW NURSERY SCHOOL GRADUATES FOR THE BEHAVIOR RATING FORM, SELF-CONCEPT INTERVIEW AND THE WPPSI

		BEHAVIOR RATING FORM	SELF-CONCEPT INTERVIEW	WPPSI VERBAL IQ	WPPSI PERFORMANCE IQ	WPPSI TOTAL IQ
Behavior Rating Form		1.000	.600*	.607*	.074	.381
Self-Concept Interview			1.000	.336	.049	.229
WPPSI	Verbal IQ			1.000	.421	.813*
	Performance IQ				1.000	.867*
	Total IQ					1.000

Critical value of r, α = .10, two tailed test, df = 10, r = .497.

* Significant

BEHAVIOR RATING FORM

TABLE 69

CORRELATIONS BETWEEN BEHAVIOR RATING FORM SELF-CONCEPT AND EACH OF THE CLASS STANDING VARIABLES

CLASS STANDING VARIABLES	BEHAVIOR RATING FORM	
	r	df
Reading	.254	10
Arithmetic	.358	10
Independence	.413	10
Attention	.293	10
Behavior	.406	10
Total	.396	10

Critical value of r, α = .10, two tailed test, df = 10, r = .497.

WECHSLER PRESCHOOL AND PRIMARY SCALE OF INTELLIGENCE

TABLE 70

INTERCORRELATIONS BETWEEN THE WPPSI SCORES AND CLASS STANDING VARIABLES FOR THE 1968-69 NEW NURSERY SCHOOL GRADUATES

		WPPSI			CLASS STANDING VARIABLES					
		VERBAL IQ	PER-FORM-ANCE IQ	TOTAL IQ	READ-ING	ARITH-METIC	INDE-PEND-ENCE	ATTEN-TION	BE-HAV-IOR	TOTAL
WPPSI	Verbal IQ	1.000	.421	.813*	.614*	.565*	.462	.409	.252	.400
	Perform-ance IQ		1.000	.867*	.329	.347	.282	-.006	.491	.173
	Total IQ			1.000	.504*	.489	.393	.169	.410	.279
Class Standing Variables	Reading				1.000	.878*	.732*	.605*	.539*	.702*
	Arith-metic					1.000	.714*	.696*	.724*	.899*
	Independ-ence						1.000	.570*	.724*	.770*
	Attention							1.000	.554*	.834*
	Behavior								1.000	.828*
	Total									1.000

Critical value of r, α = .10, two tailed test, df = 10, r = .497.

* Significant

TABLE 71

CORRELATIONS BETWEEN SELF-CONCEPT INTERVIEW SCORES AND EACH OF THE CLASS STANDING VARIABLES

CLASS STANDING VARIABLES	SELF-CONCEPT INTERVIEW	
	r	df
Reading	.198	10
Arithmetic	.305	10
Independence	.396	10
Attention	-.059	10
Behavior	.239	10
Total	.210	10

Critical value of r, α = .10, two tailed test, df = 10, r = .497.

ANALYSIS OF PERFORMANCE OF 1967-68 NEW NURSERY SCHOOL GRADUATES AND A SIMILAR SAMPLE COMPARISON GROUP

At the time of testing, the 1967-68 graduates and their similar sample comparison groups were enrolled in first grade. There were eleven variables collected for fifteen New Nursery School graduates and twelve children of similar background. The following tables compare the two groups on those variables deemed pertinent to this report.

AGE

TABLE 72

MEAN AGE DATA FOR THE 1967-68 NEW NURSERY SCHOOL GRADUATES AND A SIMILAR SAMPLE

	NEW NURSERY SCHOOL 1967-68 GRADUATES	SIMILAR SAMPLE
Age in Months	76.467 (4.581)	78.833 (4.970)
Mean Difference		-2.366

ATTENDANCE

Note that even though the number of days absent is almost identical, New Nursery School graduates were present more days than the comparison group.

TABLE 73

MEAN ATTENDANCE DATA FOR THE 1967-68 NEW NURSERY SCHOOL GRADUATES AND A SIMILAR SAMPLE

	NEW NURSERY SCHOOL 1967-68 GRADUATES		SIMILAR SAMPLE	
Days Present	167.800	(14.194)	162.417	(18.836)
Days Absent	10.000	(11.142)	10.083	(4.274)
Totals	177.800	(7.253)	172.500	(18.520)

CLASS STANDING VARIABLES

TABLE 74

ANALYSIS OF THE 1967-68 NEW NURSERY SCHOOL GRADUATES AND SIMILAR SAMPLE ON THE CLASS STANDING VARIABLES

CLASS STANDING VARIABLES	NEW NURSERY SCHOOL 1967-68 GRADUATES	SIMILAR SAMPLE	r*
Reading	2.333 (1.291)	3.250 (1.422)	-.33
Arithmetic	2.267 (1.335)	2.750 (1.288)	-.19
Independence	2.467 (1.552)	3.333 (1.371)	-.29
Attention Span	2.467 (1.246)	3.083 (1.379)	-.24
Appropriate Behavior	2.733 (1.033)	2.917 (1.564)	-.07
Total	2.267 (1.100)	3.161 (1.261)	-.37

* Positive r's indicate superior performance by New Nursery School graduates while negative r's indicate superior performance by the Similar Sample group.

SELF-CONCEPT INTERVIEW

There was no significant difference between the two groups on this measure.

TABLE 75

COMPARISON OF MEAN SCORES ON THE SELF-CONCEPT INTERVIEW FOR THE 1967-68 NEW NURSERY SCHOOL GRADUATES AND A SIMILAR SAMPLE

	NEW NURSERY SCHOOL 1967-68 GRADUATES	SIMILAR SAMPLE
Self-Concept Interview	28.000 (6.202)	29.727 (3.165)
t-test	t = -.8210	

Critical value of t, α = .05, one tailed test, df = 25, t = 2.060.

BEHAVIOR RATING FORM (Self-Concept)

TABLE 76

ANALYSIS OF MEAN SELF-CONCEPT SCORES ON THE BEHAVIOR RATING FORM FOR THE 1967-68 NEW NURSERY SCHOOL GRADUATES AND A SIMILAR SAMPLE

	NEW NURSERY SCHOOL GRADUATES	SIMILAR SAMPLE
Behavior Rating Form	34.857 (6.785)	35.500 (7.052)
t-test	t = -.3010	

Critical value of t, α = .05, two tailed test, df = 25, t = 2.060.

CORRELATIONS

Correlations were computed between all possible pairs of variables for the New Nursery School groups. The following tables summarize the results of this correlational analysis.

TABLE 77

CORRELATIONS BETWEEN BEHAVIOR RATING FORM SELF-CONCEPT AND EACH OF THE OTHER VARIABLES

VARIABLES		BEHAVIOR RATING FORM SELF-CONCEPT	
		r	df
Attendance	Days Present	.138	12
	Days Absent	-.014	12
	Total	.244	12
Self-Concept Interview		.377	11
Class Standing Variables	Reading	.382	12
	Arithmetic	.624*	12
	Independence	.647*	12
	Attention	.506*	12
	Behavior	.688*	12
	Total	.537*	12

Critical values of r, α = .10, two tailed test, df = 11, r = .476; df = 12, r = .458.

* Significant

TABLE 78

CORRELATIONS BETWEEN THE SELF-CONCEPT INTERVIEW SCORES AND EACH OF THE OTHER VARIABLES

VARIABLES		SELF-CONCEPT INTERVIEW	
		r	df
Attendance	Days Present	-.334	12
	Days Absent	.266	12
	Total	-.243	12
Behavior Rating Form	Self-Concept	.377	11
Class Standing Variables	Reading	.288	12
	Arithmetic	.353	12
	Independence	.391	12
	Attention	.251	12
	Behavior	.197	12
	Total	.218	12

Critical values of r, $\alpha = .10$, two tailed test,
df = 11, r = .476; df = 12, r = .458.

TABLE 79

INTERCORRELATIONS MATRIX FOR THE CLASS STANDING VARIABLES

	READING	ARITHMETIC	INDEPENDENCE	ATTENTION	BEHAVIOR	TOTAL
Reading	1.000	.898*	.808*	.740*	.500*	.838*
Arithmetic		1.000	.832*	.865*	.677*	.921*
Independence			1.000	.766*	.618*	.884*
Attention				1.000	.825*	.925*
Behavior					1.000	.759*
Total						1.000

Critical value of r, α = .10, two tailed test, df = 13, r = .441.

ANALYSIS OF PERFORMANCE OF 1966-67 NEW NURSERY SCHOOL GRADUATES AND A SIMILAR SAMPLE COMPARISON GROUP

At the time of testing, the 1966-67 graduates and their similar sample comparison groups were enrolled in second grade. Fifteen variables were examined and comparisons made between twenty-three New Nursery School graduates and seventeen similar sample children.

AGE

The comparison group which was to have been of similar background was six months older than the experimental group. Because of this age difference, results reported here must be interpreted with that in mind.

TABLE 80

MEAN AGE DATA FOR THE 1966-67 NEW NURSERY SCHOOL GRADUATES AND A SIMILAR SAMPLE

	NEW NURSERY SCHOOL 1966-67 GRADUATES	SIMILAR SAMPLE
Age in Months	85.2174 (5.2133)	91.6470 (4.2422)
Mean Difference		-6.4296

ATTENDANCE

TABLE 81

MEAN ATTENDANCE DATA FOR THE 1966-67 NEW NURSERY SCHOOL GRADUATES AND A SIMILAR SAMPLE

	NEW NURSERY SCHOOL 1966-67 GRADUATES	SIMILAR SAMPLE
Days Present	161.000 (21.949)	170.529 (7.151)
Days Absent	12.920 (9.574)	9.412 (7.142)
Total	173.520 (20.166)	179.941 (.250)

Two New Nursery School children moved toward the end of the year, lowering the number of days present and the total.

CLASS STANDING VARIABLES

TABLE 82

ANALYSIS OF THE 1966-67 NEW NURSERY SCHOOL GRADUATES AND A SIMILAR SAMPLE ON THE CLASS STANDING VARIABLES

CLASS STANDING VARIABLES	NEW NURSERY SCHOOL 1966-67 GRADUATES	SIMILAR SAMPLE	r*
Reading	2.720 (1.275)	3.118 (1.453)	-.10
Arithmetic	2.880 (1.394)	3.355 (1.320)	-.13
Independence	3.040 (1.207)	3.176 (1.237)	-.02
Attention Span	2.800 (1.354)	3.000 (1.275)	-.07
Appropriate Behavior	3.120 (1.092)	3.353 (1.169)	-.10
Total	2.960 (1.136)	3.235 (1.147)	-.07

* Positive r's indicate superior performance by New Nursery School graduates while negative r's indicate superior performance by the Similar Sample group.

METROPOLITAN ACHIEVEMENT TEST

TABLE 83

COMPARISON OF MEAN SCORES ON THE METROPOLITAN ACHIEVEMENT TEST FOR THE 1966-67 NEW NURSERY SCHOOL GRADUATES AND A SIMILAR SAMPLE

METROPOLITAN ACHIEVEMENT TEST		NEW NURSERY SCHOOL 1966-67 GRADUATES	SIMILAR SAMPLE	MEAN DIFFERENCE
Reading	Raw	37.000 (12.858)	49.176 (17.508)	-12.176
	%-tile	19.462 (17.319)	36.059 (27.033)	-16.597
Mathematics	Raw	37.462 (12.101)	44.235 (9.634)	- 6.773
	%-tile	32.692 (27.442)	43.353 (27.852)	-10.661

SELF-CONCEPT INTERVIEW

There was no significant difference between the two groups on this measure.

TABLE 84

COMPARISON OF MEAN SCORES ON THE SELF-CONCEPT INTERVIEW FOR THE 1966-67 NEW NURSERY SCHOOL GRADUATES AND A SIMILAR SAMPLE

	NEW NURSERY SCHOOL 1966-67 GRADUATES	SIMILAR SAMPLE
Self-Concept Interview	28.826 (4.271)	30.375 (4.064)
t-test	t = -1.6307	

Critical value of t, α = .05, one tailed test, df = 40, t = 1.684.

BEHAVIOR RATING FORM (Self-Concept)

There was no significant difference between the two groups on this measure.

TABLE 85

COMPARISON OF THE MEAN BEHAVIOR RATING FORM SCORES FOR THE 1966-67 NEW NURSERY SCHOOL GRADUATES AND A SIMILAR SAMPLE

	NEW NURSERY SCHOOL 1966-67 GRADUATES	SIMILAR SAMPLE
Behavior Rating Form	34.200 (6.364)	34.059 (5.793)
t-test	t = .1266	

Critical value of t, α = .05, one tailed test, df = 40, t = 1.684.

CORRELATIONS

TABLE 86

CORRELATIONS BETWEEN BEHAVIOR RATING FORM (SELF-CONCEPT) AND EACH OF THE OTHER VARIABLES OBTAINED FOR THE 1966-67 NEW NURSERY SCHOOL GRADUATES

		BEHAVIOR RATING FORM (SELF-CONCEPT)	
VARIABLES		r	df
Attendance	Days Present	.190	23
	Days Absent	-.529*	23
	Total	-.043	23
Self-Concept Interview		.051	21
Class Standing Variables	Reading	.490*	23
	Arithmetic	.613*	23
	Independence	.590*	23
	Attention	.725*	23
	Behavior	.518*	23
	Total	.653*	23
Metropolitan Achievement	Reading %-tile	.401	11
	Mathematics %-tile	.556	11

Critical value of r, α = .10, two tailed test,
df = 11, r = .476; df = 21, r = .352; df = 23, r = .337.

* Significant

SELF-CONCEPT INTERVIEW

TABLE 87

CORRELATIONS BETWEEN SELF-CONCEPT INTERVIEW SCORES AND EACH OF THE OTHER VARIABLES OBTAINED FOR THE 1966-67 NEW NURSERY SCHOOL GRADUATES

VARIABLES		SELF-CONCEPT INTERVIEW	
		r	df
Attendance	Days Present	-.097	21
	Days Absent	.050	21
	Total	-.103	21
Behavior Rating Form	Self-Concept	.051	21
Class Standing Variables	Reading	.095	21
	Arithmetic	.114	21
	Independence	.017	21
	Attention	.177	21
	Behavior	.230	21
	Total	.107	21
Metropolitan Achievement	Reading %-tile	.276	11
	Mathematics %-tile	.394	11

Critical value of r, α = .10, two tailed test, df = 11, r = .476, df = 21, r = .352.

TABLE 88

INTERCORRELATIONS BETWEEN CLASS STANDING VARIABLES AND METROPOLITAN ACHIEVEMENT SCORES FOR THE 1966-67 NEW NURSERY SCHOOL GRADUATES

		CLASS STANDING VARIABLES						METROPOLITAN ACHIEVEMENT	
		READING	ARITHMETIC	INDEPENDENCE	ATTENTION	BEHAVIOR	TOTAL	READING %-tile	MATHEMATICS %-tile
Class Standing Variables	Reading	1.000	.801*	.765*	.738*	.653*	.855*	.702*	.423
	Arithmetic		1.000	.870*	.781*	.721*	.892*	.475*	.575*
	Independence			1.000	.821*	.691*	.913*	.502*	.490*
	Attention				1.000	.834*	.889*	.514*	.358
	Behavior					1.000	.810*	.342	.143
	Total						1.000	.491*	.431
Metropolitan Achievement	Reading %-tile							1.000	.737*
	Mathematics %-tile								1.000

Critical value of r, $\alpha = .10$, two tailed test, df = 12, r = .458.

ANALYSIS OF PERFORMANCES OF 1965-66 NEW NURSERY SCHOOL GRADUATES AND A SIMILAR SAMPLE COMPARISON GROUP

At the time of testing, the 1965-66 graduates and their similar sample comparison group were enrolled in third grade. Twenty variables were examined for sixteen New Nursery School graduates and eleven children of a Similar Sample. The following tables compare with the two groups on these variables.

AGE

TABLE 89

MEAN AGE DATA FOR THE 1965-66 NEW NURSERY SCHOOL GRADUATES AND A SIMILAR SAMPLE

	NEW NURSERY SCHOOL 1965-66 GRADUATES	SIMILAR SAMPLE
Age in Months	102.3750 (4.8836)	101.8000 (3.2935)
Mean Difference	.575	

ATTENDANCE

TABLE 90

MEAN ATTENDANCE DATA FOR THE 1965-66 NEW NURSERY SCHOOL GRADUATES AND A SIMILAR SAMPLE

	NEW NURSERY SCHOOL 1965-66 GRADUATES	SIMILAR SAMPLE
Days Present	171.063 (5.603)	167.800 (6.478)
Days Absent	7.938 (4.090)	13.100 (8.698)
Total	179.000 (3.742)	179.700 (0.950)

CLASS STANDING VARIABLES

TABLE 91

ANALYSIS OF THE 1965-66 NEW NURSERY SCHOOL GRADUATES AND A SIMILAR SAMPLE ON THE CLASS STANDING VARIABLES

CLASS STANDING VARIABLES	NEW NURSERY SCHOOL 1965-66 GRADUATES	SIMILAR SAMPLE	r*
Reading	2.563 (1.315)	2.300 (1.337)	.10
Arithmetic	2.750 (1.23)	2.700 (1.252)	.02
Independence	2.875 (1.147)	2.800 (1.229)	.03
Attention	2.688 (1.250)	2.600 (1.265)	.04
Behavior	3.000 (1.211)	3.000 (1.247)	0.00
Total	2.813 (1.109)	2.800 (1.229)	.01

* Positive r's indicate superior performance by New Nursery School graduates while negative r's indicate superior performance by the Similar Sample group.

STANFORD-BINET INTELLIGENCE SCALE

TABLE 92

COMPARISON OF THE MEAN IQ SCORES ON THE STANFORD-BINET FOR THE 1965-66 NEW NURSERY SCHOOL GRADUATES AND A SIMILAR SAMPLE

(Administered January, 1970)

STANFORD-BINET	NEW NURSERY SCHOOL 1965-66 GRADUATES	SIMILAR SAMPLE	MEAN DIFFERENCE
Chronological Age	107.750 (4.313)	106.700 (3.335)	1.050
Mental Age	108.500 (10.844)	100.800 (15.296)	7.700
IQ	98.313 (10.137)	91.900 (13.119)	6.413

TABLE 93

COMPARISON OF THE MEAN IQ SCORES ON THE STANFORD-BINET FOR THE 1965-66 NEW NURSERY SCHOOL GRADUATES AND SIMILAR SAMPLE COMPARISON GROUPS

STANFORD-BINET	NEW NURSERY SCHOOL 1965-66 GRADUATES		SIMILAR SAMPLE		MEAN DIFFERENCE
Administered September, 1966	N = 16	98.64	N = 11	91.00	7.64
Administered January, 1970	N = 16	98.31	N = 11	91.90	6.41

Differences which existed at the time of kindergarten entrance have persisted to third grade.

Examination of individual scores show many fluctuations, however, with some children gaining on measures of IQ, others losing.

Comparisons with previous reports of evaluations made when these groups first entered nursery school and then kindergarten reveal some interesting patterns.

In fall 1966, the New Nursery School group entering kindergarten had twenty-one members, the Similar Sample comparison group had twenty-eight members. The mean IQ scores at that time are shown in Table 94, taken from Interim Report: Research of the New Nursery School.[1]

TABLE 94

MEAN IQ SCORES ON THE STANFORD-BINET AT KINDERGARTEN ENTRANCE, (FALL, 1966) NEW NURSERY SCHOOL GROUP AND A SIMILAR SAMPLE

NEW NURSERY SCHOOL		SIMILAR SAMPLE		MEAN DIFFERENCE
N = 21	Mean 93.76 (12.18)	N = 28	Mean 83.75 (18.66)	10.01

By January, 1970, the number of children in the experimental group had dropped to sixteen (16) and those in the comparison group to eleven (11). Comparison of Table 93 with Table 94, showing Stanford-Binet IQ scores on those children still available for testing in 1970 indicated that those children who moved from the area were those making lower scores on this measure as the means for both groups were raised when only the smaller number of children available in 1970 were considered.

As with other children, especially children from low-income homes, mobility is a fact of life. Even though the families included in the experimental and comparison groups were considered Greeley residents, five out of twenty-one of the experimental group moved, and seventeen out of twenty-eight of the comparison groups moved or were otherwise unavailable. This mobility may well compound the educational difficulties encountered by these pupils.

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[1] Glen Nimnicht, John Meier, Oralie McAfee. Interim Report: Research of the New Nursery School. Greeley, Colorado: Colorado State College, 1967.

GOODENOUGH-HARRIS DRAWING TEST (Draw-A-Man)[1]

Findings on the Goodenough-Harris Drawing Test, as reported in Table 95 are consistent with other findings. All drawings were rated by the same person, fully qualified in testing and measurement procedures.

TABLE 95

COMPARISON OF MEAN STANDARD SCORES FOR 1965-66 NEW NURSERY SCHOOL GRADUATES AND A SIMILAR SAMPLE ON THE DRAW-A-MAN

	NEW NURSERY SCHOOL 1965-66 GRADUATES	SIMILAR SAMPLE
Draw-a-Man	96.250 (12.310)	93.3000 (13.153)
t-test	t = -.5498	

Critical value of t, α = .05, two tailed test, df = 24, t = 2.064.

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[1] Dale B. Harris. Children's Drawings as Measures of Intellectual Maturity. New York: Harcourt, Brace & World, Inc., 1963.

SELF-CONCEPT INTERVIEW

There were no significant differences between the two groups on this measure.

TABLE 96

COMPARISON OF MEAN SCORES ON THE SELF-CONCEPT INTERVIEW FOR THE 1965-66 NEW NURSERY SCHOOL GRADUATES AND A SIMILAR SAMPLE

	NEW NURSERY SCHOOL 1965-66 GRADUATES	SIMILAR SAMPLE
Self-Concept Interview	29.375 (3.594)	28.600 (3.893)
t-test	t = .5528	

Critical value of t, $\alpha = .05$, one tailed test, df = 25, t = 1.708.

BEHAVIOR RATING FORM (Self-Concept)

There were no significant differences between the two groups on this measure.

TABLE 97

COMPARISON OF THE MEAN SCORES ON THE BEHAVIOR RATING FORM (SELF-CONCEPT) FOR THE 1965-66 NEW NURSERY SCHOOL GRADUATES AND A SIMILAR SAMPLE

	NEW NURSERY SCHOOL 1965-66 GRADUATES	SIMILAR SAMPLE
Behavior Rating Form	34.625 (5.005)	32.700 (5.376)
t-test	t = 1.134	

Critical value of t, $\alpha = .05$, one tailed test, df = 25, t = 1.708.

METROPOLITAN ACHIEVEMENT TEST

On this standardized test of achievement, the New Nursery School group was scoring well above the similar sample comparison group.

TABLE 98

COMPARISON OF MEAN SCORES ON THE METROPOLITAN ACHIEVEMENT TEST FOR THE 1965-66 NEW NURSERY SCHOOL GRADUATES AND A SIMILAR SAMPLE

METROPOLITAN ACHIEVEMENT	NEW NURSERY SCHOOL 1965-66 GRADUATES	SIMILAR SAMPLE	MEAN DIFFERENCE
Reading Raw Score	55.385 (19.203)	45.800 (20.810)	9.5850
Reading %-tile	36.538 (28.471)	26.600 (30.515)	9.9380
Mathematics Raw Score	67.846 (15.620)	53.600 (19.906)	14.2460
Mathematics %-tile	43.769 (25.991)	29.000 (29.128)	14.7690

CORRELATIONS

In this table, which is inconsistent with other findings reported, the Self-Concept Interview shows a higher correlation with an IQ measure than the Behavior Rating Form.

TABLE 99

INTERCORRELATIONS FOR THE 1965-66 NEW
NURSERY SCHOOL GRADUATES FOR THE BEHAVIOR
RATING FORM, SELF-CONCEPT INTERVIEW, AND
THE STANFORD-BINET

	BEHAVIOR RATING FORM	SELF-CONCEPT INTERVIEW	STANFORD-BINET IQ
Behavior Rating Form	1.000	.349	.207
Self-Concept Interview		1.000	.533*
Stanford-Binet IQ			1.000

Critical value of r, α = .10, two tailed test,
df = 14, r = .426.

* Significant

TABLE 100

CORRELATIONS BETWEEN BEHAVIOR RATING FORM (SELF-CONCEPT) AND EACH OF THE REMAINING VARIABLES

VARIABLES		BEHAVIOR RATING FORM	
		r	df
Class Standing Variables	Reading	.612*	14
	Arithmetic	.682*	14
	Independence	.630*	14
	Attention	.737*	14
	Behavior	.528*	14
	Total	.611*	14
Metropolitan Achievement	Reading	.383	11
	Mathematics	.446	11
Draw-A-Man	%-tile	-.293	14

Critical values of r, α = .10, two tailed test, df = 11, r = .476; df = 14, r = .426.

* Significant

SELF-CONCEPT INTERVIEW

TABLE 101

CORRELATIONS BETWEEN SELF-CONCEPT INTERVIEW AND EACH OF THE REMAINING VARIABLES

		SELF-CONCEPT INTERVIEW	
VARIABLES		r	df
Class Standing Variables	Reading	.517*	14
	Arithmetic	.547*	14
	Independence	.449*	14
	Attention	.488*	14
	Behavior	.460*	14
	Total	.471*	14
Metropolitan Achievement	Reading	.691*	11
	Mathematics	.604*	11
Draw-A-Man	%-tile	-.234	14

Critical values of r, α = .10, two tailed test,
df = 11, r = .476; df = 14, r = .426.

* Significant

STANFORD-BINET INTELLIGENCE SCALE

The intercorrelations shown in the following table show that class standings in reading and mathematics show significant correlations with the Metropolitan Achievement Test. The Metropolitan Achievement Test also shows a significant correlation with the IQ as measured by the Stanford-Binet. However, the only significant correlation between IQ and the class standing variables was on behavior. If the Stanford-Binet is supposed to be a good predictor of school success one would expect higher correlations between IQ and class standing variables, at least in reading and mathematics.

TABLE 102

INTERCORRELATIONS BETWEEN THE STANFORD-BINET IQ SCORES, CLASS STANDING VARIABLES AND METROPOLITAN ACHIEVEMENT TEST ON NEW NURSERY SCHOOL GRADUATES

		STANFORD BINET	CLASS STANDING VARIABLES						METROPOLITAN ACHIEVEMENT	
		IQ	READING	ARITHMETIC	INDEPENDENCE	ATTENTION	BEHAVIOR	TOTAL	READING	MATHEMATICS
Stanford-Binet	IQ	1.000	.326	.416	.359	.387	.462*	.361	.649*	.626*
Class Standing Variables	Reading		1.000	.911*	.845*	.885*	.586*	.900*	.714*	.630*
	Arithmetic			1.000	.868*	.894*	.622*	.886*	.720*	.714*
	Independence				1.000	.947*	.768*	.976*	.725*	.826*
	Attention					1.000	.793*	.965*	.848*	.853*
	Behavior						1.000	.794*	.738*	.714*
	Total							1.000	.803*	.796*
Metropolitan Achievement	Reading								1.000	.897*
	Mathematics									1.000

Critical values of r, $\alpha = .10$, two tailed test, df = 14, r = .426, df = 11, r = .476.

* Significant

TABLE 103

CORRELATION MATRIX RELATING STANFORD-BINET SCORES DRAW-A-MAN SCORES, BEHAVIOR RATING FORM (SELF-CONCEPT), SELF-CONCEPT INTERVIEW, AND CLASS STANDING FOR 1969-70 THIRD GRADE STUDENTS WHO ARE NEW NURSERY SCHOOL GRADUATES

	STANFORD-BINET	DRAW-A-MAN	BEHAVIOR RATING FORM	SELF-CONCEPT INTERVIEW	CLASS STANDING
Stanford-Binet		.17	.20	.53*	.36
Draw-A-Man			-.42	.07	-.46*
Behavior Rating Form				.36	.61*
Self-Concept Interview					.47*
Class Standing					

Critical value of r, α = .10, two tailed test, df = 14, r = .426.

* Significant

ANALYSIS OF PERFORMANCES OF 1964-65 NEW NURSERY SCHOOL GRADUATES AND A SIMILAR SAMPLE COMPARISON GROUP

At the time of testing, the 1964-65 comparison graduates and their similar sample comparison group were enrolled in fourth grade. Fifteen variables were examined on seven New Nursery School graduates and nine children of a similar sample. The following tables compare the two groups on these variables.

AGE

TABLE 104

MEAN AGE DATA FOR THE 1964-65 NEW NURSERY SCHOOL GRADUATES AND A SIMILAR SAMPLE

	NEW NURSERY SCHOOL 1964-65 GRADUATES	SIMILAR SAMPLE
Age in Months	111.7143 (2.1384)	112.6667 (2.8723)
Mean Difference		-.9524

ATTENDANCE

TABLE 105

MEAN ATTENDANCE DATA FOR THE 1964-65 GRADUATES AND A SIMILAR SAMPLE

	NEW NURSERY SCHOOL 1964-65 GRADUATES	SIMILAR SAMPLE
Days Present	170.857 (10.287)	165.778 (9.338)
Days Absent	8.714 (10.547)	14.222 (9.338)
Total	179.571 (1.137)	180.000 (0.000)

CLASS STANDING VARIABLES

TABLE 106

ANALYSIS OF THE 1964-65 NEW NURSERY SCHOOL GRADUATES AND A SIMILAR SAMPLE ON THE CLASS STANDING VARIABLES

CLASS STANDING VARIABLES	NEW NURSERY SCHOOL 1964-65 GRADUATES	SIMILAR SAMPLE	r*
Reading	3.715 (1.113)	3.000 (.926)	.40
Arithmetic	3.429 (0.976)	2.750 (1.035)	.39
Independence	3.875 (1.069)	3.000 (.926)	.44
Attention Span	3.714 (1.113)	2.750 (1.165)	.45
Appropriate Behavior	4.000 (0.816)	3.125 (1.246)	.43
Total	3.429 (0.976)	3.125 (1.126)	.27

* Positive r's indicate superior performance by New Nursery School graduates while negative r's indicate superior performance by the Similar Sample group.

METROPOLITAN ACHIEVEMENT TEST

TABLE 107

COMPARISON OF MEAN SCORES ON THE METROPOLITAN ACHIEVEMENT TEST FOR THE 1964-65 NEW NURSERY SCHOOL GRADUATES AND A SIMILAR SAMPLE

METROPOLITAN ACHIEVEMENT		NEW NURSERY SCHOOL 1964-65 GRADUATES	SIMILAR SAMPLE	MEAN DIFFERENCE
Reading	Raw	53.200 (22.808)	52.400 (16.288)	.800
	%-tile	40.606 (35.125)	34.200 (23.816)	6.406
Mathe-matics	Raw	59.400 (26.941)	47.600 (18.942)	11.800
	%-tile	40.200 (32.965)	20.000 (26.805)	20.200

SELF-CONCEPT INTERVIEW

There was no significant difference between the two groups on this measure.

TABLE 108

COMPARISON OF MEAN SCORES ON THE SELF-CONCEPT INTERVIEW FOR THE 1964-65 NEW NURSERY SCHOOL GRADUATES AND A SIMILAR SAMPLE

	NEW NURSERY SCHOOL 1964-65 GRADUATES	SIMILAR SAMPLE
Self-Concept Interview	31.857 (5.699)	30.750 (3.694)
t-test	t = 1.8497	

Critical value of t, α = .05, one tailed test, df = 14, t = 2.145.

BEHAVIOR RATING FORM (Self-Concept)

There was no significant difference between the two groups on this measure.

TABLE 109

COMPARISON OF THE MEAN BEHAVIOR RATING FORM SCORES FOR THE 1964-65 NEW NURSERY SCHOOL GRADUATES AND A SIMILAR SAMPLE

	NEW NURSERY SCHOOL 1964-65 GRADUATES	SIMILAR SAMPLE
Behavior Rating Form	37.429 (4.614)	32.500 (3.780)
t-test	t = 1.0133	

Critical value of t, α = .05, one tailed test, df = 14, t = 2.145.

CORRELATIONS

TABLE 110

CORRELATIONS BETWEEN BEHAVIOR RATING FORM (SELF-CONCEPT) AND EACH OF THE OTHER VARIABLES OBTAINED FOR THE 1964-65 NEW NURSERY SCHOOL GRADUATES

VARIABLES		BEHAVIOR RATING FORM (SELF-CONCEPT) r	df
Attendance	Days Present	-.209	5
	Days Absent	.167	5
	Total	-.340	5
Self-Concept Interview		-.599	5
Class Standing Variables	Reading	.580	5
	Arithmetic	.545	5
	Independence	.724	5
	Attention	.580	5
	Behavior	.575	5
	Total	.545	5
Metropolitan Achievement	Reading %-tile	.733	3
	Mathematics %-tile	.627	3

TABLE 111

CORRELATIONS BETWEEN SELF-CONCEPT INTERVIEW SCORES AND EACH OF THE OTHER VARIABLES OBTAINED FOR THE 1964-65 NEW NURSERY SCHOOL GRADUATES

VARIABLES		SELF-CONCEPT INTERVIEW	
		r	df
Attendance	Days Present	.005	5
	Days Absent	.085	5
	Total	.838	5
Behavior Rating Form	Self-Concept	-.599	5
Class Standing Variables	Reading	-.034	5
	Arithmetic	.073	5
	Independence	-.332	5
	Attention	-.218	5
	Behavior	-.287	5
	Total	.073	5
Metropolitan Achievement	Reading %-tile	-.260	3
	Mathematics %-tile	-.117	3

CLASS STANDING VARIABLES

TABLE 112

INTERCORRELATIONS BETWEEN CLASS STANDING VARIABLES AND METROPOLITAN ACHIEVEMENT SCORES FOR THE 1964-65 NEW NURSERY SCHOOL GRADUATES

		CLASS STANDING VARIABLES						METROPOLITAN ACHIEVEMENT	
		READING	ARITHMETIC	INDEPENDENCE	ATTENTION	BEHAVIOR	TOTAL	READING %-tile	MATHEMATICS %-tile
Class Standing Variables	Reading	1.000	.899*	.941*	.865*	.183	.899*	.916*	.855*
	Arithmetic		1.000	.867*	.899*	.209	1.000	.916*	.855*
	Independence			1.000	.941*	.191	.867*	.938*	.814*
	Attention				1.000	0.000	.899*	.938*	.814*
	Behavior					1.000	.209	.815*	.922*
	Total						1.000	.916*	.855*
Metropolitan Achievement	Reading %-tile							1.000	.960*
	Mathematics %-tile								1.000

Critical Value of r, α = .05, two tailed test, df = 3, r = .805.

* Significant

It is interesting to note the high correlation existing between these two measures, one a teacher rating and the other a standardized achievement test. The one exception is the teacher rated category "behavior", which does not correlate significantly with any other of the class standing variables, but does correlate significantly with both reading and mathematics on the Metropolitan Achievement.

SUMMARY: TRENDS

Available data on five groups of New Nursery School children and their similar comparison groups have been presented in the previous section. In several cases, statistical analyses have not been made because of the small number of subjects. For that reason, the statements presented below should not be considered as generalizable beyond these groups.

Differences which appear in a group in one year are not always apparent the next, even on standardized tests. And differences which appear on tests do not always show up on other evaluations. No doubt some of these inconsistencies are a function of the very inexact art of testing with young children, especially those from backgrounds other than middle class. And as pointed out in the introduction to this section, other factors in the nursery school experience itself may be emerging.

Attendance reflects an important aspect of an individual's attitude toward school. Four of the five graduate groups show attendance superior to their comparison groups. The one group which did not was the 1966-67. Comparable attendance records have been found in previous years. Although this could be a result of the selectivity of the New Nursery School group, the extensive efforts at recruitment and at keeping children in school indicate it is not.

Three of the groups, the 1964-65, 1965-66, and 1966-67, took the Metropolitan Achievement Test in public school. Two of the experimental groups scored higher than their comparison groups. The group which was lower was the 1966-67.

At the end of each school year, teachers in the elementary schools were asked to give their opinion of each child's standing within his class in reading, arithmetic, independence, attention span, appropriate behavior, and total success. In all cases differences between the two groups were so slight as to be almost nonexistent, although three of the New Nursery School groups received rankings higher than their comparison groups. The two which did not were the 1966-67 and 1967-68. It should be noted, however, that the 1967-68 pupils are not being compared with pupils in their own classes, but with pupils in small towns around Greeley, rated by teachers in those classrooms. No objective measures of achievement are available for this comparison group.

On the indirect measure of self-concept, Stanley Coopersmith's Behavior Rating Form, four out of five New Nursery School groups had mean scores higher than their comparison groups, although in only one group (1968-69) was the difference significant. The one group which ranked lower than the comparison was the 1967-68.

On the direct measure of self-concept, the Self-Concept Interview, no significant differences were found between the two groups. Numerical differences were very slight, although in three out of five cases the New Nursery School groups had scores higher than their comparison groups. The two groups which did not were the 1966-67 and the 1967-68.

The Stanford-Binet Scale of Intelligence, administered in January, 1970, to children then in third grade, shows the New Nursery School group scoring higher than the comparison group, with little difference being shown in mean IQ from kindergarten to third grade.

The number of children in both groups who had moved or for other reasons were not enrolled in school in Greeley or nearby towns had raised the IQ means for both groups from those obtained in the original comparison in fall, 1966.

The Draw-A-Man Test showed the experimental group performing at a standard score ranking higher than the Similar Sample. However, correlations with the other IQ measures were negative. No reason for this can even be ventured, as other sources report moderate to high correlations with measures of achievement.[1]

The question must be raised as to why the 1966-67 and 1967-68 New Nursery School groups are not performing at a level higher than their comparison groups, as are the other three New Nursery School graduate groups. Several factors, both inside and outside the nursery school situation are probably operating. Some of these were mentioned in the introduction to this section.

** The rapid expansion of staff in 1966-67 made control of program focus and methods difficult.

** Observation and participation of twenty-five trainees per quarter for both these years placed dual responsibilities on teaching staff and presented problems to the children of consistency and having to relate to a number of trainees.

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[1] Dale B. Harris. Children's Drawings as Measures of Intellectual Maturity. New York: Harcourt, Brace & World, 1963.

** The 1966-67 group, at the time of nursery school entrance, scored lower on the Stanford-Binet and the Peabody Picture Vocabulary Test than the 1964-65 and 1965-66 groups.

In fall 1966, the entering three year olds given the Stanford-Binet had mean scores of 89.65, with ten unable or unwilling to take the test. The entering four year olds had IQ scores of 81.76, with one unable to be tested. The mean scores that were obtained are lower than the 1964-65 and 1965-66 entering groups, with one exception. Also, the number of children unable to be tested is higher.

Unfortunately, because of funding difficulties, no tests were given in fall, 1967, so that comparisons at kindergarten entrance with the comparison group of like background are impossible.

Similarly, there are no entering evaluations of the children who began nursery school in fall, 1967.

** In an attempt to avoid selecting children for the comparison group who had attended Head Start, children above the criteria used for both Head Start and the New Nursery School were sometimes chosen.

No doubt all these factors contribute. However, the first two, rapid expansion of staff and use of the school as a training center warrant some discussion, especially in light of the findings that in 1968-69, when this function was discontinued, that group's performances in the public schools became consistent with the 1964-65, 1965-66 findings. While no cause-effect relationship can be determined, nor is it implied, these findings suggest that careful quality control is necessary for children's programs which have multiple functions. Teachers whose responsibilities are divided between educating children and adults may need special training or support if both roles are to be properly played. Current hopes to utilize early childhood centers to educate young people for future child rearing roles in both homes and occupations may well call for careful planning and implementation if goals for both groups are to be achieved. Certainly more study and careful evaluation of results of such multiple purpose early childhood centers is in order.

SECTION NINE

SUMMARY AND DISCUSSION

Discussion of the data and analyses will follow the same general order of presentation as the analyses -- comparative, correlational, and longitudinal studies. In addition, there will be a section on observations of progress in behavior areas that do not lend themselves to quantification.

Included in this discussion are observations and recommendations drawn from experiences at the New Nursery School in curriculum development, teaching, and teacher training, which reflect to a degree the findings of the present study but which are not directly or solely based on those data.

DISCUSSION OF COMPARATIVE ANALYSES

THE WECHSLER PRESCHOOL AND PRIMARY SCALE OF INTELLIGENCE AND THE STANFORD-BINET SCALE OF INTELLIGENCE

Caution must be used in making statements about a group's performance on these instruments, because so many children were unwilling or unable to take either test when they entered nursery school. Those in the first year group who took the test measured a gain of 6.70 points after nine months schooling and a three month summer vacation. One child showed a loss, another maintained his pre-test total score while gaining in verbal IQ, and all the others gained, with the highest gain being 16 IQ points.

The second year pupils did not show these gains, as the gain from pre to post was 1.7. This decelaration of gain in the second year of a Head Start type experience is not atypical, and shows up on other instruments as well.

Comparison of the New Nursery School second year group of similar background without Head Start type experience reveals a difference in IQ scores on the WPPSI of 7.852. The New Nursery School group scored 91.923, the similar sample 84.071. A greater variation in the scores is found in the verbal portion of the test, where the New Nursery School group was 11.181 IQ points higher than the comparison group.

THE PRESCHOOL INVENTORY

Both the first year and second year groups of New Nursery School children made significant gains in each category of the Preschool Inventory and the total. The three year old group (first year) more than doubled their pre-test score (from 17.5 to 35.3), while the four year old group (second year) gained almost 16 points (from 36.0 to 51.8). One can conclude that the New Nursery School experience is indeed effective in changing performance on this instrument related to school readiness. In contrast to the WPPSI, the second year group continued rapid gain on the ability and content measured by this instrument.

THE BELLUGI-KLIMA TEST OF GRAMMATICAL COMPREHENSION

The total gain for both New Nursery School groups on this instrument evaluating the child's comprehension of key grammatical, structural, and lexical elements of the language was statistically significant. Gains were more evident on those items where curriculum emphasis was strong and curriculum development well underway, as for example, on items concerning modification, comparatives, and negation. However, none of the gains were very great, indicating the difficulty of helping children grasp these language meanings.

Comparison of the experimental group's performance with that of the advantaged group indicates that this instrument reveals specific areas where differences exist, and that the language differences found in many children from low income, low educational level homes are far deeper than vocabulary alone. They extend to structural and grammatical meanings as well. Methods and materials to lessen those differences have only begun to be constructed.

It is interesting to note that the second year advantaged group scored lower on the post-test of this instrument than the first year advantaged group.

THE TASK ACCOMPLISHMENT INVENTORIES

Both New Nursery School groups made gains on every category of the Task Accomplishment Inventories, designed to measure knowledge of specific concepts emphasized at the school. In fifteen out of eighteen instances, the gains were statistically significant. Thus the experiences offered do seem to be effective in helping children learn these specifics.

The inventories also revealed that these concepts were ones which differentiated the educationally advantaged child from the educationally disadvantaged child, and that a nursery school experience can be effective in lessening those differences. The one outstanding exception was in rational and rote counting. Both advantaged groups gained at a rate faster than the New Nursery School groups.

The deceleration of gain for second year pupils is also evident on these inventories. It is difficult to avoid the conclusion that the experiences offered the second year pupils are simply not challenging enough. If, for example, a four year child can count eight objects correctly in September, there is no reason he cannot go far beyond that by May. Curriculum emphasis has, in fact, been changed to reflect these findings.

CINCINNATI AUTONOMY TEST BATTERY

Only one subtest of this battery was used, the Dog and Bone Test to measure innovative behavior or inventiveness. In both the first year and second year groups, the advantaged group scored higher than the New Nursery School group. However, the New Nursery School second year pupils scored higher than the first year, and considerably higher than their own performance the previous year (3.1). Because the CATB is not standardized, no means of evaluating a child's performance is available except in terms of comparison with other groups who have taken the same test. However, the reader is cautioned that Innovative Behavior, as all the CATB subtests, is difficult to score, and there is the possibility of scoring differences. Comparison with scores reported on the same test given groups of disadvantaged four year olds in the University of Louisville, Louisville, Kentucky, "Experimental Variation of Head Start Curricula: A Comparison of Current Approaches" reveals that the New Nursery School second year students, at 7.857, were scoring higher than the post-test level reported for any of the approaches used. (Bereiter-Englemann, 4.19; DARCEE, 6.36; Montessori, 5.61; Traditional, 4.23; Controls, 4.97)[1] In fact, the New Nursery School three year olds were scoring higher than some of the four year old groups in this report. Thus there are indications that the New Nursery School experience may be fostering innovative behavior and inventiveness.

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[1] Louise Miller *et al.*, Experimental Variation of Head Start Curricula: A Comparison of Current Approaches, Progress Report No. 5, Louisville, Kentucky: University of Louisville, 1970, p. 27.

THE CATEGORIES TEST

On this evaluation of the child's ability to categorize in a predetermined manner answering "what goes with this?", the New Nursery School children scored significantly lower than the advantaged group. However, the second year pupils did respond to more questions in "expected" ways. Also, there were very few "no responses".

DISCUSSION OF CORRELATIONAL ANALYSES

With so many variables and intercorrelations examined, it is impossible to discuss each one. Only those which seem to have direct bearing on the problems under investigation are discussed.

Current emphasis on the importance of a person's positive self-concept as it relates to his school performance makes evaluation of instruments designed to measure self-esteem essential. Self-concept and self-esteem are elusive things, and may well be composed of several entities. Evaluation is difficult at any age, but is especially difficult with very young children such as those in this study. Two measures of self-concept, one direct (Self-Concept Interview) and one indirect (Behavior Rating Form, filled out by teachers) were used. No significant correlation was found between the two measures of self-concept in either analysis, suggesting that they are measuring different entities. Neither measure had a significant relationship to IQ scores, although the magnitude of the correlation was higher with the Behavior Rating Form. Further study and evaluation of these and other measures of self-esteem in young children are needed, as well as the relationship of self-esteem to school achievement. Since few interviews are suitable, especially with children with language problems, perhaps other approaches are needed.

Many significant correlations between the various measures of IQ, achievement, specific concepts learned, and comprehension of the structure of the language were found, indicating that these measures may be tapping similar aspects of ability or experience. More correlations of this type were found in the second year group than in the first year.

Correlates showing up with regularity on all typing booth activities are the Preschool Inventory, knowledge of concepts of color, shape and counting. However some correlations involving the typing booth differ for the first year and second year children, perhaps indicating that the children approach this activity at varying levels and gain from it different things. On the second year students, the highest phase reached, an indicator of achievement in the booth, correlates well with all measures of the WPPSI. Only in the first year is a correlate found with Innovative Behavior. Correlations are also found between times asked to type, days typed, total minutes spent typing, and highest phase reached.

DISCUSSION OF LONGITUDINAL DATA

One of the goals of Head Start is to increase the child's chances of success in the public schools. Most of the New Nursery School children entered regular public school kindergartens in their own neighborhoods. Five children went to the University of Northern Colorado Laboratory School in September, 1970. To evaluate the performance of New Nursery School graduates in the school, follow-up data were collected on each group and on a comparison group with a cultural and sociological background similar to that of the New Nursery School group. Summarized, these findings indicated no significant differences on the class standings of the experimental and comparison groups. No significant differences were found between the two groups on a direct measure of self-concept, the Self-Concept Interview. On an indirect measure of self-concept, the Behavior Rating Form, no significant differences were found between the two groups, except for the 1968-69 group.

Three of the groups took the Metropolitan Achievement Test in public school. Two of the experimental groups scored higher than their comparison groups.

The Stanford-Binet Scale of Intelligence, administered in January, 1970, to children then in third grade, shows the New Nursery School group scoring higher than the comparison group, with little change being shown in mean IQ from kindergarten to third grade. The Draw-A-Man Test administered at the same time also showed the experimental group ranking higher than the comparison.

The WPPSI, given to New Nursery School graduates and a similar sample comparison group in fall, 1969, shows New Nursery School pupils scoring higher on all measures of the WPPSI, with a difference on total IQ of 7.583. This test was given at kindergarten entrance, after three months summer vacation, not immediately after an intensive school experience.

In general, New Nursery School graduates were absent from school fewer days than their comparison groups. Only one child had been placed in Special Education classes; he had been diagnosed as being brain damaged. Several were receiving remedial reading instruction.

Considering the fact that extensive efforts were made to recruit for the New Nursery School experience children who were most deprived in terms of language ability, education of parents, size of family, and other measures indicative of possible disadvantage, the reports given above are encouraging.

QUALITATIVE OBSERVATIONS

Attempting to assess fairly the impact of specific program variables on the human organism is difficult at best. This difficulty is compounded when the human organism in question is young, and the assessment is of aspects of human behavior about which little is really known.

Nevertheless, attempts such as made here must be undertaken. One should always remember, however, that there are other aspects of human behavior equally important that do not lend themselves to quantitative analysis. This section will report some of those immeasurables that are indicated by anecdotal records and observation.

In the New Nursery School certain skills related to the role of the pupil were stressed; these are likely to lessen the cultural shock the child encounters when entering school and to raise teacher expectations. The children became familiar with school related materials and their proper use. They learned to use scissors, pencils, and crayons; to listen to and follow directions; to know when they can talk freely, and when they should listen to other children or to the teacher.

They learned to look at, listen to, and enjoy books, both individually and in a group. They learned interpersonal skills such as taking turns, respecting another child's rights, and using words to facilitate interpersonal relationships. They also learned the importance of school attendance, which is not required in Colorado below first grade. Many parents from the sub-cultural group which is the primary concern of the New Nursery School do not send their children to kindergarten and do not stress regular attendance after that. Although most of the families involved in both the experimental and comparison groups have "settled out" of the migrant stream, many of them, including mothers, work as seasonal agricultural labor. Children are often taken with them, and are enrolled late in school. Although attendance at the New Nursery School is regular for most of the children, some families have a pattern or irregularity. Staff members worked diligently with the families to break this pattern.

The child's attitude toward school may be a factor in his success or failure. At the New Nursery School, every effort was made to make the child's experience enjoyable, successful, and fulfilling. One could not measure the width of a smile as a child ran from the bus to school, or the pride in his voice as he suddenly discovers, "*I know all those colors*," or "*I can count how many there are*," or "*Johnny and I can put the blocks away all by ourselves*." Nevertheless, these things were important.

The child is encouraged to operate as an autonomous individual, free to make significant choices, to work at his own pace at tasks he has helped choose. Increased confidence and ability to do this were evident as the year progressed. The child who entered unable to find anything constructive to do was, by the end of the year, usually able to choose where he wanted to work and then to work there.

He learned that adults in the school valued him as an individual, and were willing to listen to what he had to say. He learned he had the freedom and gradually acquired the confidence to converse with ease, ask questions, request and receive help or guidance from the adults and other children.

The child was encouraged to acquire an attitude of seeking information and knowledge. Children were presented with many open ended problem solving situations, as well as encouraged to ask questions about specific content. It is impossible to separate attitude from ability to formulate questions, but the anecdotal records indicated that questioning increased. The word order may still be confused, but the inquiring attitude is there.

Any preschool program should foster a healthful relationship between the child and the adults, as well as among children. The child learned to trust the teachers and other adults to guide, support, and encourage him, and to recognize his ability to succeed.

An indicator of the child's progress toward confidence in adult-child interaction, especially in a situation where a response to a question is expected, is the increase in ability to respond in an informal or formal questioning situation. This increase in ability was evident in the data presented on the WPPSI and Stanford-Binet, and on the Preschool Inventory.

The ability to take tests can hardly be considered an appropriate objective for a child in a Head Start program. It is, however, an indicator of a child's ability to interact freely with an adult outside the family, to understand and be understood, to answer questions, to follow verbal directions, to know and to be unafraid to indicate that he knows. The New Nursery School program has provided that ability. Since observations concerning lack of response do not appear in the studies of other groups, it might well be behavior which is typical only of this particular sub-cultural group. It is obviously, though, a definite hindrance to school success, and progress in this behavioral area should enhance the child's school performance.

The very low mean educational level of the parents of New Nursery School children (6.28 grades in school), and the high incidence of school difficulties encountered by the older children and relatives in these families can easily lead to a discouraged and negative attitude toward the child's chances of success in school. There is a possibility that the child's increasing competence in language and in school related abilities may cause a change in parental expectations with long range positive effects. Some evidence indicated that this is so.

Parents seeing their children working with the home visitor at home have remarked on how much the children knew. Others have related things the children do at home, surprised at what the child is able to do, and hopeful that this means the child will not repeat their school experience, which one mother described as, "*two years in first, two years in second, two years in third, until I finally made it to sixth!*"

There is no easy or simple answer to the complex problem of optimal education of young children, especially those from situations where poverty, expectations, and cultural and social patterns have not led to easy success in the public schools. Clearly, however, carefully planned and implemented preschool programs provide a part of that answer.

REFERENCES

Banta, Thomas J. "Cincinnati Autonomy Test Battery." University of Cincinnati, 1966. (Mimeographed)

Bellugi-Klima, Ursula. "Test of Grammatical Comprehension." National Laboratory Early Childhood Education, Illinois University, Urbana, Illinois, 1968.

Caldwell, Bettye M. and Soule, David. The Preschool Inventory. Berkeley, California: Educational Testing Service, 1967.

Coopersmith, Stanley. The Antecedents of Self-Esteem. San Francisco: W. H. Freeman and Company, 1967.

Fitzgibbon, Ann and Nimnicht, Glen. Self-Concept Interview. Berkeley, California: Far West Laboratory for Educational Research and Development, 1967.

Harris, Dale B. Children's Drawings as Measures of Intellectual Maturity. New York: Harcourt, Brace & World, Inc., 1963.

Miller, Louise, *et al*. "Experimental Variations of Head Start Curricula: A Comparison of Current Approaches." Progress Report No. 5. Louisville, Kentucky: University of Louisville, 1970.

Nimnicht, Glen; Meier, John; McAfee, Oralie. Interim Report: Research of the New Nursery School. Greeley, Colorado: Colorado State College, 1967.

Nimnicht, Glen, *et al*. "C" Test. New Nursery School, 1203 Fourth Street, Greeley, Colorado 80631. 1967.

Terman, Lewis M. and Merrill, Maud A. Stanford-Binet Intelligence Scale. Boston: Houghton Mifflin Co., 1960.

The New Nursery School Final Report to the Office of Economic Opportunity, October 1, 1968 to September 30, 1969. Greeley, Colorado: University of Northern Colorado.

Wechsler, David. "Wechsler Preschool and Primary Scale of Intelligence." Psychological Corporation, 304 East 45th Street, New York, N.Y. 10017.